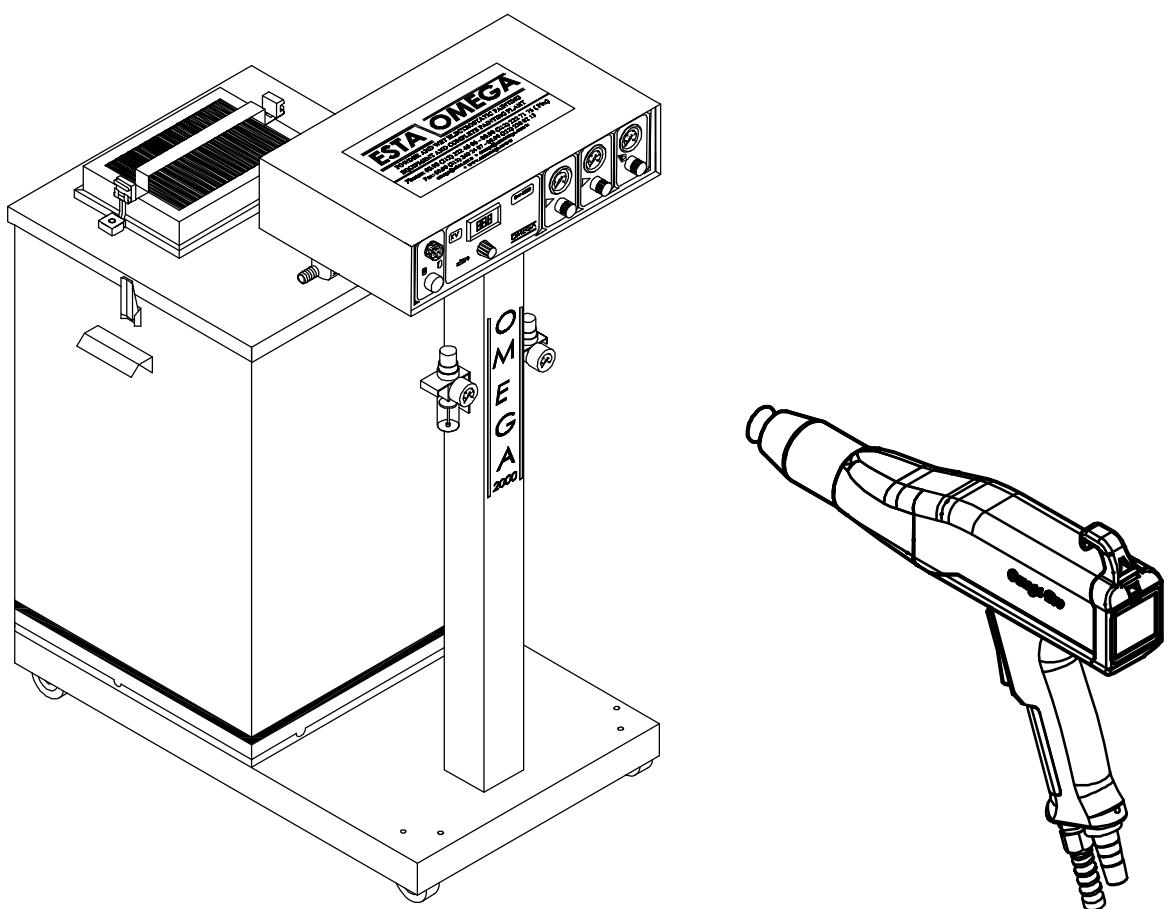


ESTA **OMEGA**

ELECTROSTATIC
POWDER COATING UNIT



MODEL = PRO (OMEGA 2000)

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The characteristics given in this instruction manual are not binding and ESTA/OMEGA A.Ş.
Reserve the right to modify its models.



TEKNİK MAKİNA SANAYİİ TİCARET A.Ş.

GİYİM SANATKARLARI YAPI KOOPARATİFİ
DEPOSİTE İŞ MERKEZİ
A6 BLOK KAT :3 NO - 303 BAŞAKŞEHİR / İSTANBUL
TEL: 0 (212) 222 71 75 (Pbx) FAX: 0 (212) 220 24 07

OPERATION AND CONTROL

The powder in the powder hopper is fluidised by the admission of air under the fluidised bed plate.

The turbulence air regulator , above which the control manometer is positioned, allows fluidisation control. (Page 8)

Suction plunger (Injector) fitted to the top of the hopper sucks in the turbulence powder and transfer it to the gun.

- Air regulator for the plunger injection air. This air controls the quantity of powder projected. (Page 8)
- Air regulator for the plunger dilution air. This air enables the powder transported correctly.(Page 8)
- Each air regulator is fitted with a control manometer.

When switching on the power pack the high voltage in the **PRO (OMEGA 2000)** gun is activated at the same time the powder and air supply to the gun are set free. The high voltage builds up on electrical field between the gun and the earthed work piece.

The outcoming powder / air mixture is electrostatically charged by the high electrical potential at the electrode . The deflector plate and the atomizing air produce an adjustable powder cloud.

Power pack the mains supplies **220 V 50 Hz** an input transformer which is connected to a medium frequency oscillator.

The Low Voltage cable from the power pack **0-12 V** connected to the gun.

OMEGA 2000 apowder coating installations are built according to the highest safety requirements. There is a short – circuit protection when the electrode approaches the work piece, the control module automatically reduces the amount of high voltage to a nondangerous valve

ADVICE ON USE

***Earthing**

Perfect earthing of the work pieces is premise for perfect powder coating incorrect earthing leads to:

- Very lean wrap-around
- Non - uniform coating
- Back - spraying of powder on gun operator.
- Dangerous electrical charging

***Premises for perfect earthing and coating**

- The works-pieces to be coated should be connected to the earth terminal of the electrostatic generator. It is therefore advisable to clean the hangers for the parts regularly so as to assure good contact.
- The earthing resistance of the work-piece must not exceed **1 MegaOhm**.
- Perfect earthing of the coating booth with **10 mm²** copper line.

***Powder booth**

The OMEGA 2000 powder unit is used with a powder with a suction system and a powder recovery system.

Ventilation of the spraying booth ensure correct air throughput:

The powder / air mixture concentration of **10 g/m³** for unproved powder may not exceed in any part of booth.

- The floor of working area must be electrostatically conductive. (**5 m**) around of booth must be earthed)
- All persons within the working range must wear electrostatically conductive shoes.
- If the person use gloves ensure that the palm areas are cut out.

***Powder**

A powder which binds causes blocking up take sample of powder and compress it in the palm of hand. If it binds together tightly, the powder is likely to block the pipe the or the nozzle. So concern humidy in powder and ensure recovery powder should be sieved.

*The plunger, hose and gun should be cleared with blowing air after each shift.

*The venturi pieces of injector may wear out after a certain time owing to abrasion by the powder. The wear depends on the powder used. Change the venturi once the wear obvious to the eye.

*Inspect the compressed air filter daily In particular verify that the elimination of water is carried out correctly If water appears in the hoses we recommend using an air dryer.

PRO (OMEGA 2000) POWDER COATING CONSIST FOLLOWING COMPONENTS

1- PRO (OMEGA 2000) CONTROL MODULE

2- CONSOLE ASSEMBLY

3- GROUP OF INJECTOR PUMP

4- MANUAL POWDER GUN

5- POWDER HOPPER 35Lt.

6- POWDER HOSE

7- PNEUMATIC HOSES

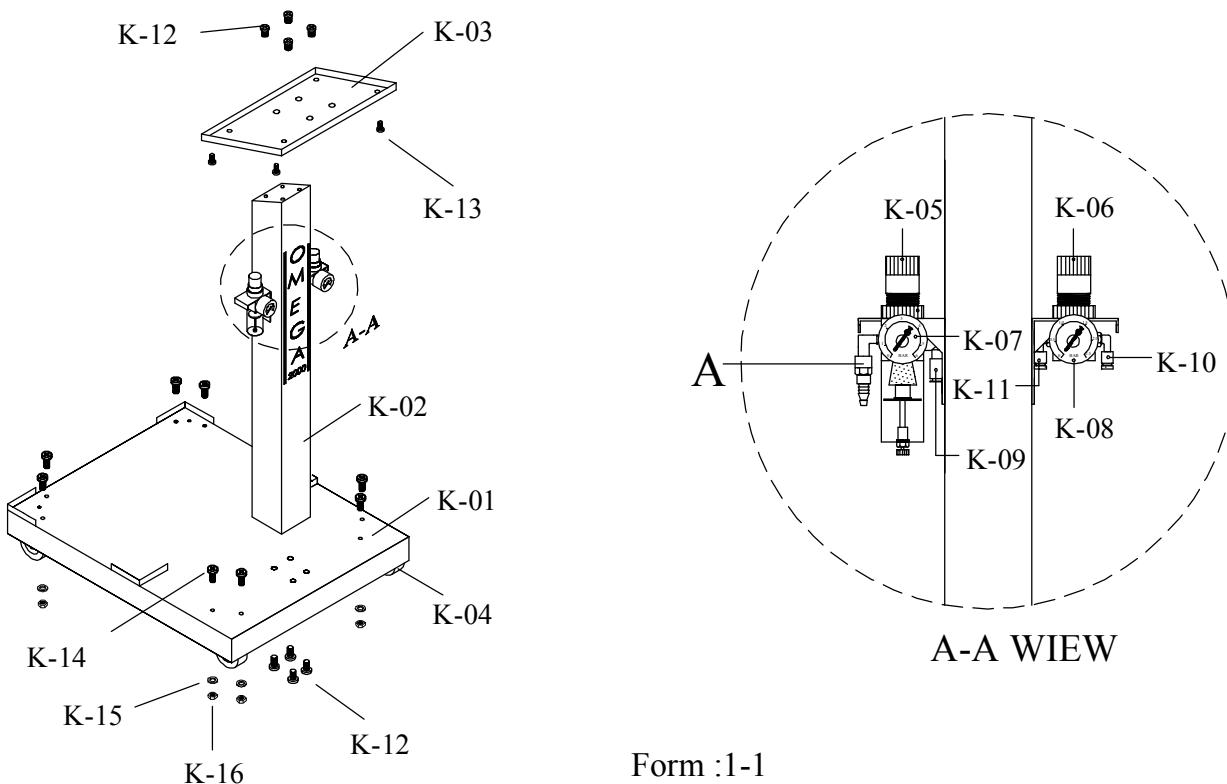
8- SPARE PARTS SET

8.1- Small size deflector Ø 17	- 1 pcs
8.2- Big size Deflector Ø 26	- 1 pcs
8.3- Injector venturi (o-ring)	- 1 pcs
8.4- Fuse 1A	- 2 pcs
8.5- Fuse 3A	- 2 pcs
8.6- Hose clamp Ø 19	- 1 pcs

PUTTING INTO SERVICE

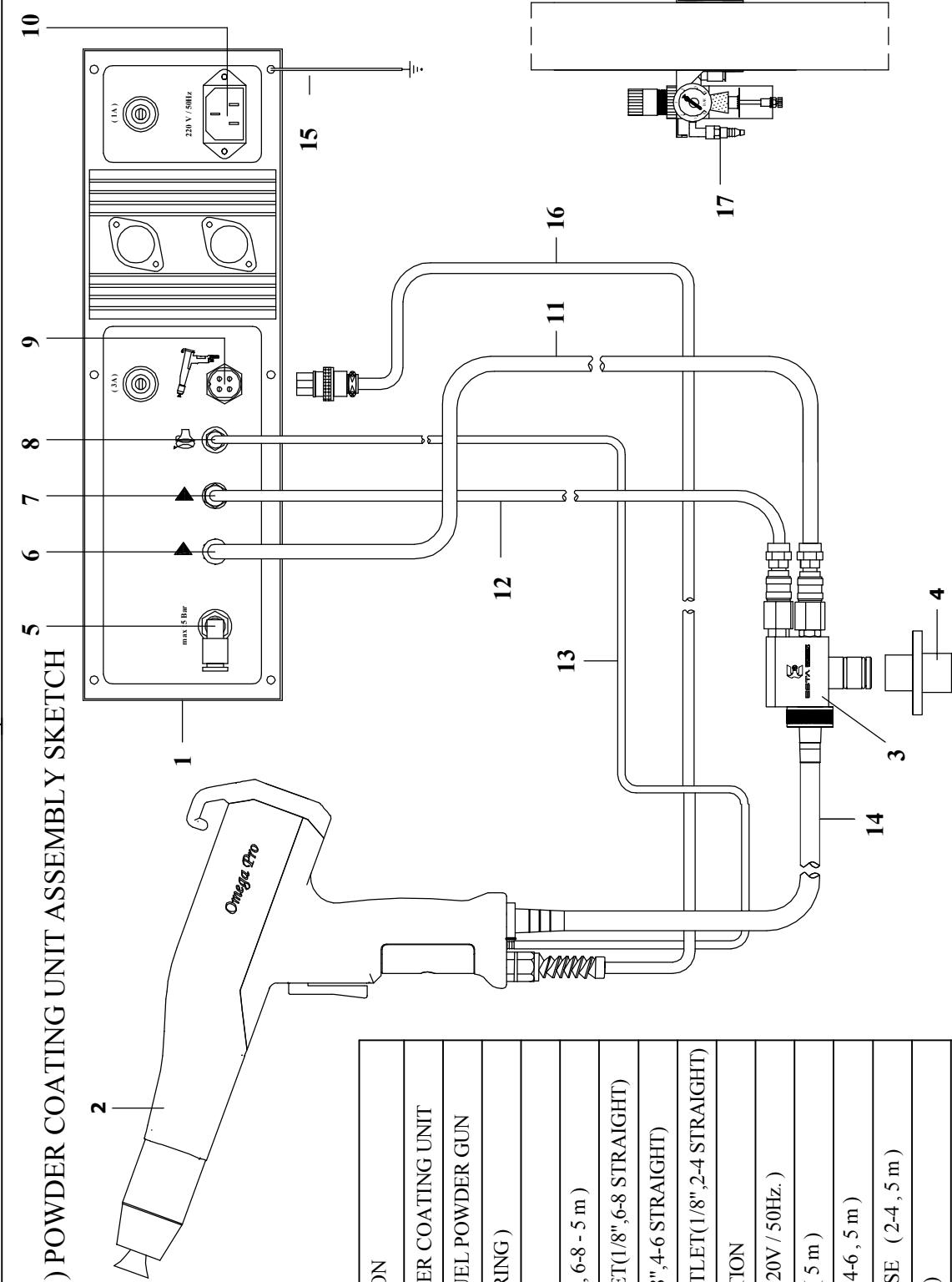
- The following should be carried out;
- Compressed air connection should be done with inside diameter 8 mm air hose to main air regulator inlet.
- Compressed air inlet pressure should be min. **4 bar** max.**6 bar**, dry , oil free .
- Main electrical connection **220 V - 50 Hz** single phase + earth mains +/- **7,5 V** change from main is acceptable otherwise extra voltage regulator should be recommended.
- Set the main air regulator **max. 5 bar**.
- Connect the earthing cable to earthing main.
- Before open main air supply pull regulator **05, 06, 07** (Page8)and turn anti clockwise set zero
- Start main switch on from rear of the control module. Pull the trigger and adjust **HV** (high voltage). It should be max. **80 kV** (duty of supply voltage change digital display should give +/- 10 kV difference.)
- Adjust the turbulence air, using air regulator to a pressure **0,3-1** bar.
- Please concern humidity and foreign material inside of powder.
- Turbulence air connected main trigger so put the gun direction to powder booth and pull the trigger, meanwhile put the lid on the hopper.
- Adjust injection air **1 to 2,5 bar** to give powder output requested level.
- Adjust dilution air **0,3 to 1,5** bar to prevent the powder from arriving in bursts when the powder flow is low.
- You should spray the powder the distance is about **10-20 cm** between gun and work pieces. you should set (**HV**) High Voltage max. level.
- If you make repaint of rejected work pieces, adjust **HV 30-40 kV**

PRO (OMEGA 2000) CONSOLE ASSEMBLY



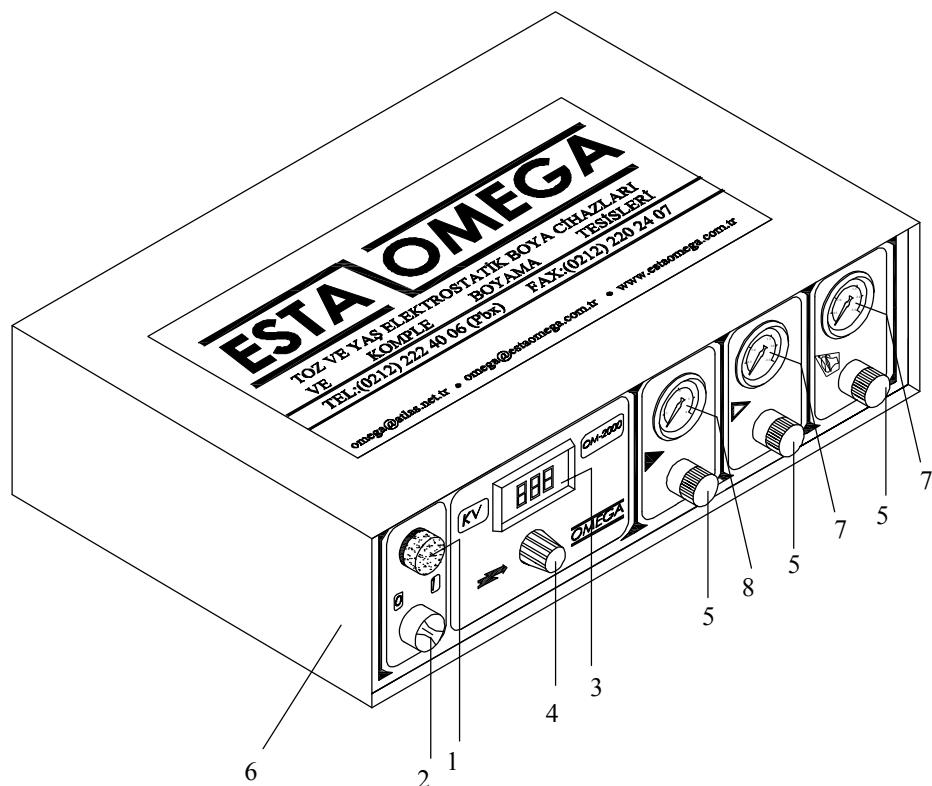
NO	ORDER NO	DESCRIPTION	QUANT.
K-01	M-08-K-20001	FOUNDATION OF CONSOLE	1
K-02	M-08-K-20002	MAIN SUPPORT OF CONSOLE	1
K-03	M-08-K-20003	TOP TRAY OF CONSOLE	1
K-04	M-08-K-20005	WHEEL	4
K-05	M-08-K-20004	MAIN AIR REGULATOR (BOTTLE INSIDE)	1
K-06	M-01-GK-20007	1/4" AIR REGULATOR (BOTTLE OUTSIDE)	1
K-07	M-01-GK-20011	MANOMETER (6 Bar.)	1
K-08	M-01-GK-20009	MANOMETER (2,5Bar)	1
K-09	M-YS-40013	1/4" - 2x6/8 TWIN AIR DISTRIBUTOR	1
K-10	M-YS-40020	1/4" , 4-6 ROTATED ELBOW	1
K-11	M-YS-40008	1/4" , 6-8 ROTATED ELBOW	1
K-12	M-08-K-20007	YSB BOLT M6 x 15 mm	8
K-13	M-YS-10031	YSB BOLT M6 x 25 mm	4
K-14	M-09-ET-20013	YHB BOLT M5 x 10 mm	8
K-15	M-09-MT-20082	M5 RING	8
K-16	M-08-K-20010	NUT M5	8

PRO (OMEGA 2000) POWDER COATING UNIT ASSEMBLY SKETCH



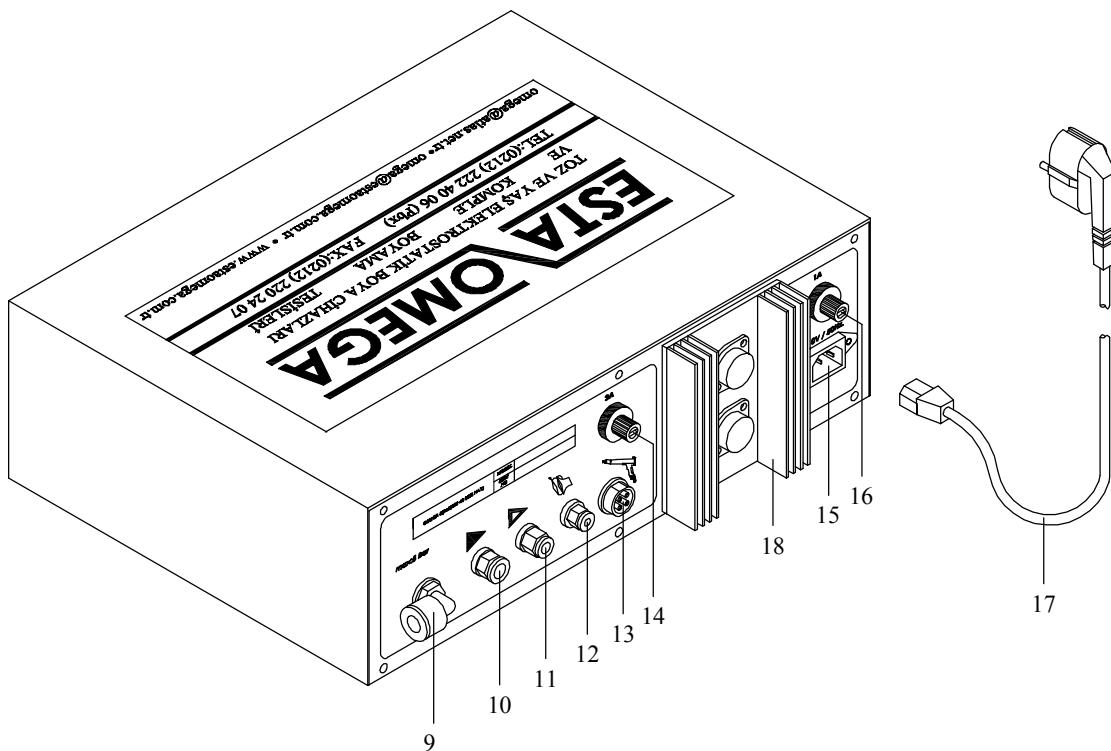
NO	DESCRIPTION
1	PRO (OM 2000) POWDER COATING UNIT
2	PRO (OM 2000) MANUEL POWDER GUN
3	INJECTOR (WITH - O-RING)
4	INJECTOR HOLE
5	MAIN AIR INLET (1/4" , 6-8 - 5 m)
6	INJECTION AIR OUTLET(1/8",6-8 STRAIGHT)
7	DILUTION OUTLET(1/8",4-6 STRAIGHT)
8	TURBULENCE AIR OUTLET(1/8",2-4 STRAIGHT)
9	GUN CABLE CONNECTION
10	MAIN ELECTRICITY (220V / 50Hz.)
11	INJECTION AIR HOSE (5 m)
12	DILUTION AIR HOSE (4-6 , 5 m)
13	TURBULENCE AIR HOSE (2-4 , 5 m)
14	POWDER HOSE (5 m)
15	EARTHING CABLE (3m)
16	GUN VOLTAGE CABLE (5,5 m)
17	MAIN COMPRESSED AIR (Max. 5 Bar)
18	TRANSFER AIR HOSE (6-8 , 25 cm)

PRO (OMEGA 2000) POWDER COATING UNIT FRONT VIEW



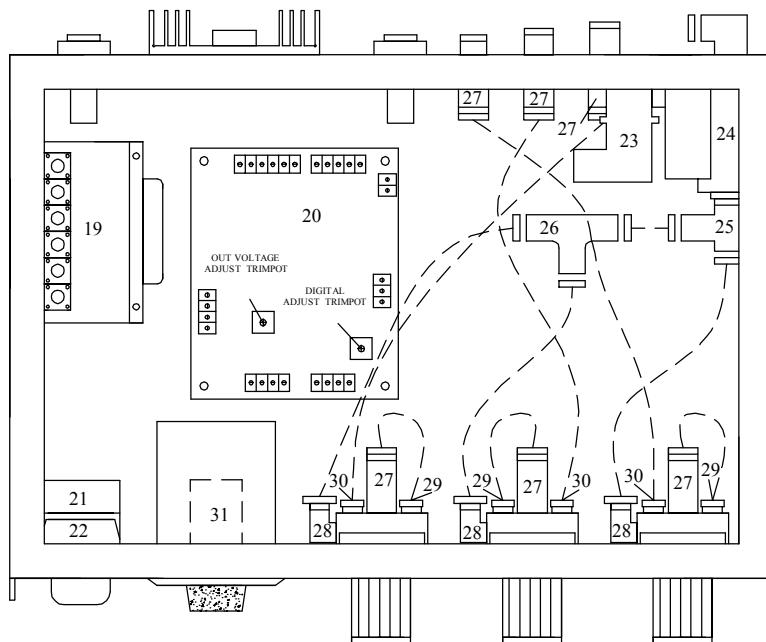
NO	ORDER NO	DESCRIPTION	QUANTITY
1	-----	TRIGGERING SIGNAL LAMP	1
2	-----	ON-OFF BUTTON	1
3	M-01-GK-20001	DIJITAL DISPLAY	1
4	M-01-GK-20002	HV POTENTIMETER HEAD	1
5	M-01-GK-20007	1/4" AIR REGULATOR (BOTTLE OUTSIDE)	3
6	M-01-GK-20000	PRO (OMEGA 2000) CONTROL UNIT	1
7	M-01-GK-20008	MANOMETER (2,5 Bar.)	2
8	M-01-GK-20010	MANOMETER (4 Bar.)	1

PRO (OMEGA 2000) POWDER COATING UNIT REAR VIEW



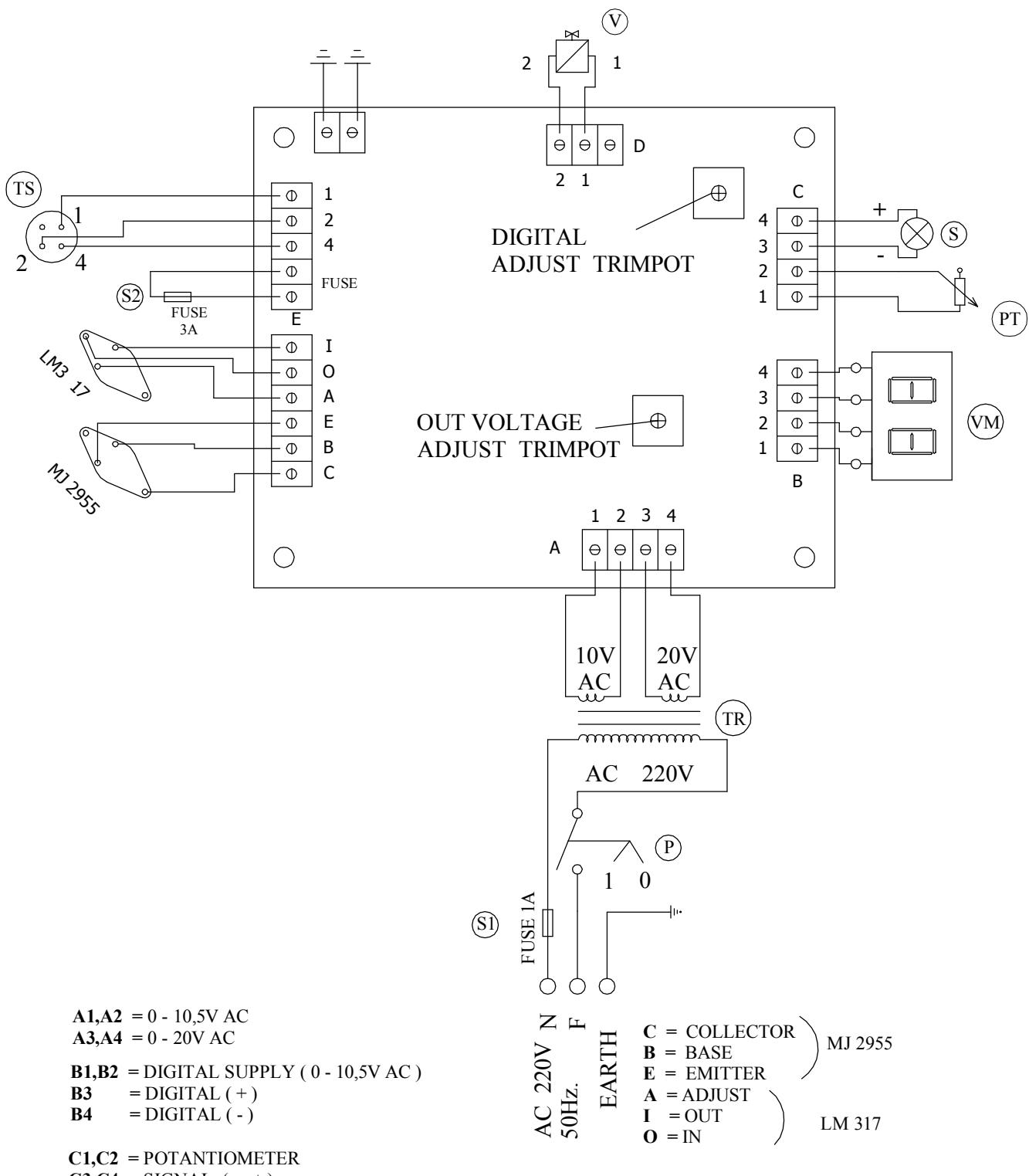
NO	ORDER NO	DESCRIPTION	QUANT.
9	M-YS-40008	MAIN AIR INLET (1/4",6-8 ROTATED ELBOW)	1
10	M-YS-40002	INJECTION AIR OUTLET (1/8",6-8 STRAIGHT MALE RACCORD)	1
11	M-YS-40001	DILUTION AIR OUTLET (1/8",4-6 STRAIGHT MALE RACCORD)	1
12	M-YS-40011	INJECTION AIR OUTLET (1/8",6-8 STRAIGHT MALE RACCORD)	1
13	M-01-GK-20020	GUN SOCKET (MALE)	1
14	M-01-GK-20021	FUSE (3A.)	1
15	M-01-GK-20075	MAIN ELECTRICITY SOCKET (220V / 50Hz.)	1
16	M-01-GK-20022	FUSE (1A.)	1
17	M-01-GK-20090	MAIN ELECTRICITY CABLE (220V / 50Hz.)	1
18	M-01-GK-20147	COOLER	1

PRO (OMEGA 2000) POWDER COATING UNIT INSIDE VIEW



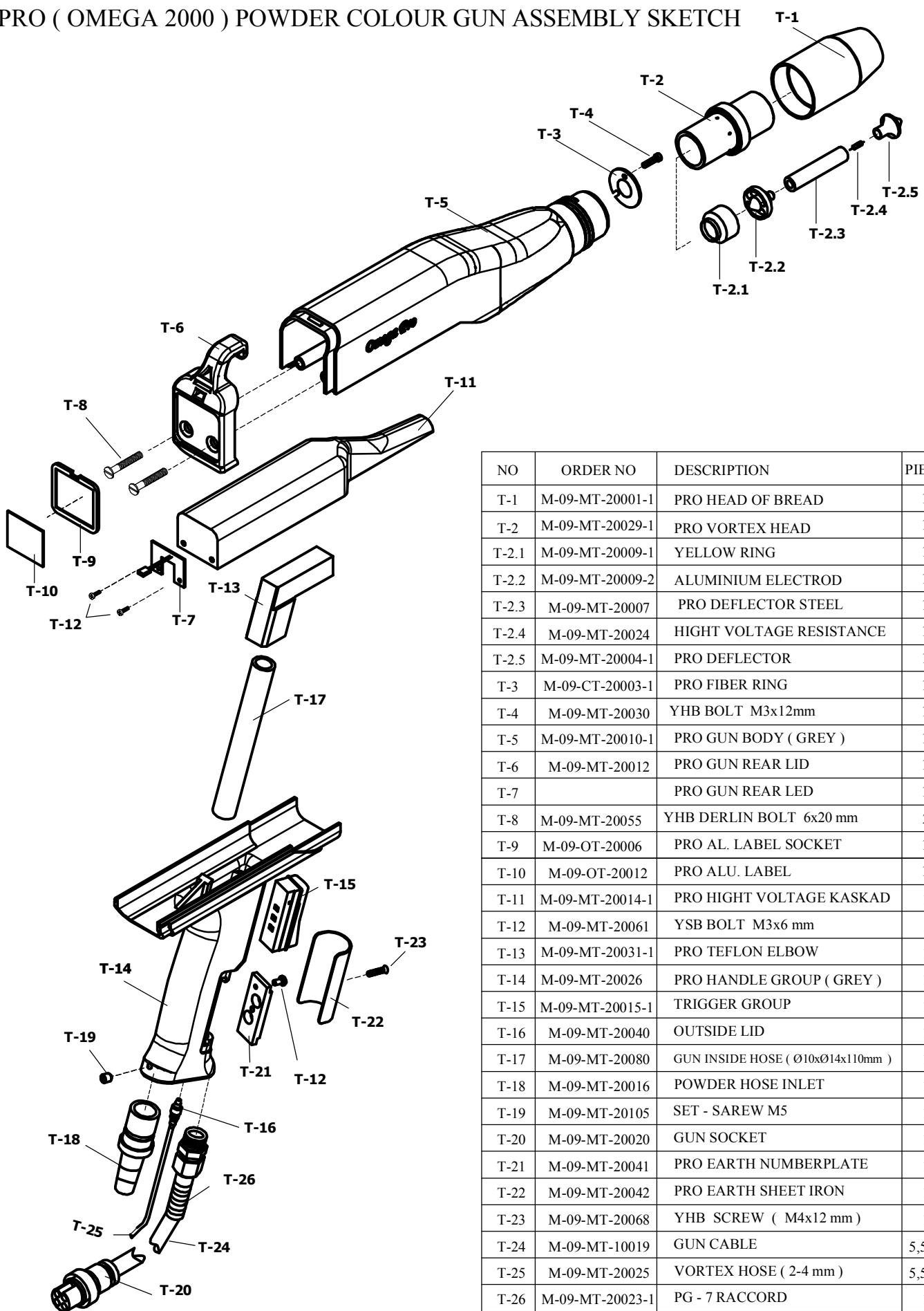
NO	ORDER NO	DESCRIPTION	QUANT.
19	M-01-GK-20012	MAIN TRANSFORMER	1
20	M-01-GK-20076	ELECTRONIC PC BOARD	1
21	M-01-GK-20014	ON-OFF SWITCH CONTACT	1
22	M-01-GK-20071	TRIGGER SIGNAL LED	1
23	M-YS-40197	SELENOID VALVE SOCKET	1
24	M-01-GK-20013	SELENOID VALVE (24 DC COMPLETE WITH REEL)	1
25	M-YS-40266	ROTATED " T " CONNECTION 1/4", 6-8 (SIDE)	1
26	M-YS-40267	" T " CONNECTION (6-8)	1
27	M-YS-40003	1/8" , 4-6 FEMALE STRAIGHT RACCORD	6
28	M-YS-40008	1/4" , 6-8 ROTATED ELBOW	3
29	M-YS-40005	1/8" , 4-6 ROTATED ELBOW	3
30	M-YS-40007	1/4" , 4-6 ROTATED ELBOW (EUROFIT)	3
31	M-01-GK-20100	UNIT POTENTIMETER	1

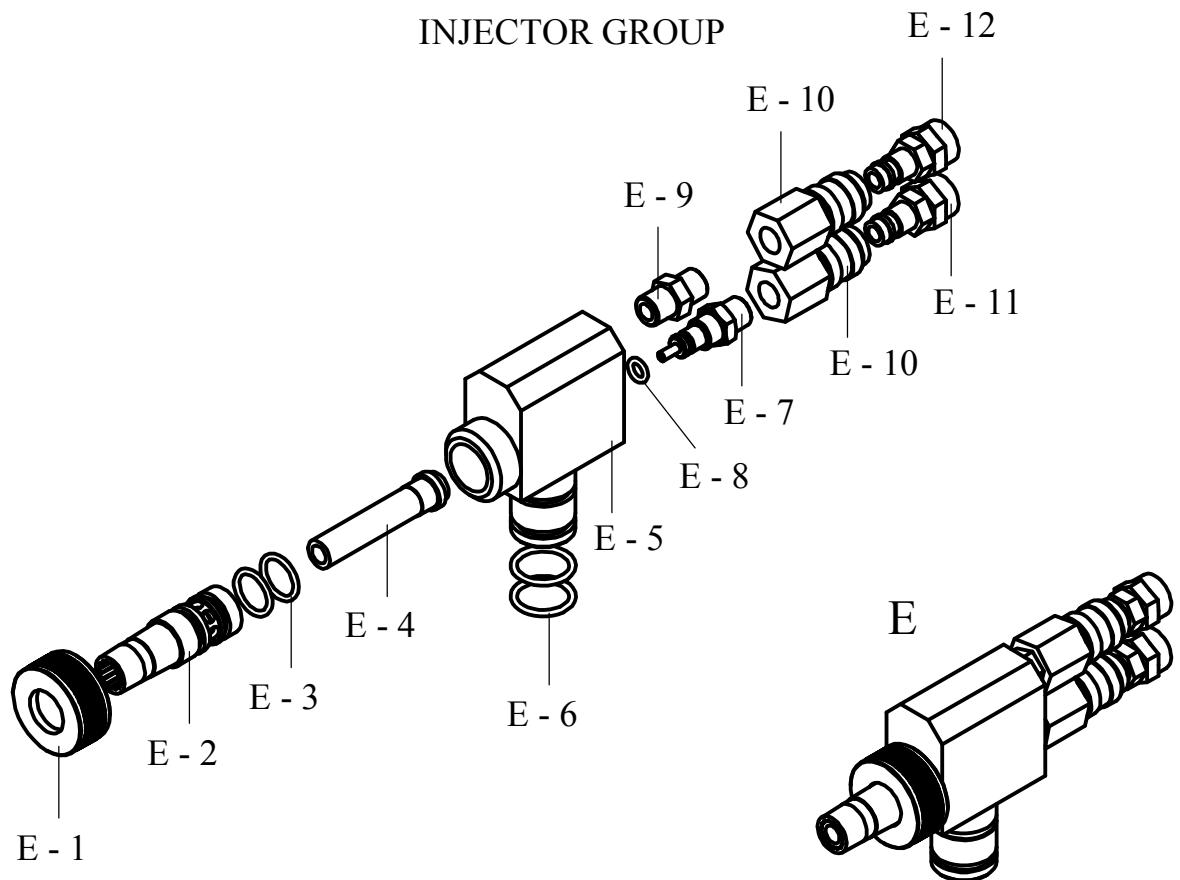
**PRO (OMEGA 2000) POWDER COATING UNIT
ELECTRICITY CONNECTION SKETCH**



V = VENTIL
VM = DIGITAL DISPLAY
S = TRIGGERING SIGNAL LAMP
S1 = PHASE PROTECTION FUSE
S2 = ELECTRONIC PC BOARD PROTECTION
TS = GUN VOLTAGE SOCKET
P = ON-OFF SWITCH
TR = TRANSFORMER (40W)
PT = VOLTAGE POTANTIOMETER

PRO (OMEGA 2000) POWDER COLOUR GUN ASSEMBLY SKETCH

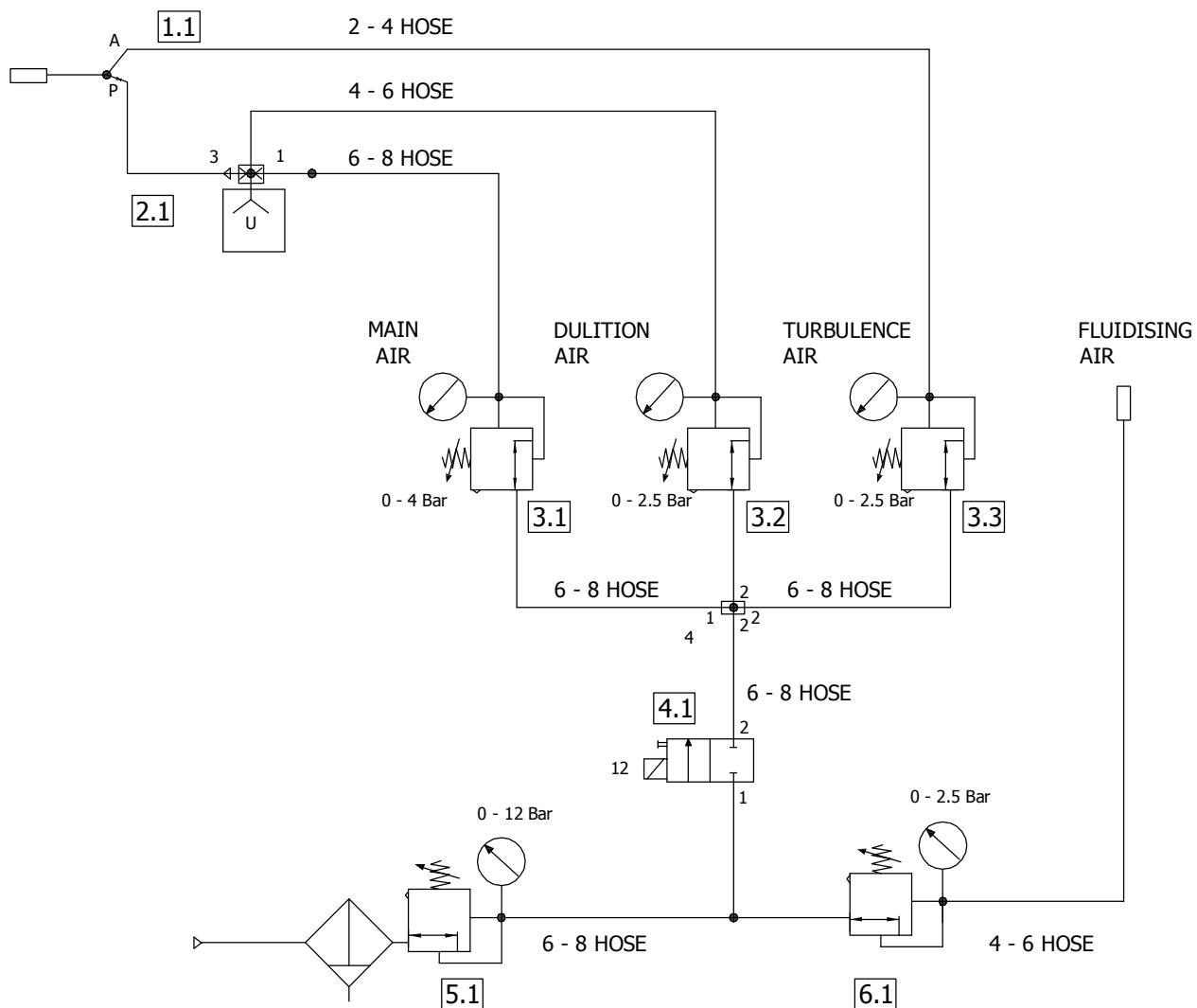




NO	ORDER NO	DESCRIPTION	PIECE	
E	M - EPRM - 001	INJECTOR GROUP (COMPLETE)	1	
E - 1	M - EPRM - 01	INJECTOR NUT	1	
E - 2	M - EPRM - 02	POWDER HOSE INLET OF PLUNGER	1	
E - 3	M - EPRM - 03	POWDER HOSE INLET OF PLUNGER - O RING	2	
E - 4	M - EPRM - 04	VENTURI	1	★
E - 5	M - EPRM - 05	INJECTOR BODY	1	
E - 6	M - EPRM - 06	INJECTOR BODY O - RING	2	
E - 7	M - EPRM - 07	INJECTOR NOZZLE	1	
E - 8	M - EPRM - 08	INJECTOR NOZZLE O - RING	1	
E - 9	M - EPRM - 09	AUXILIARY AIR INTRODUCTION PART	1	
E - 10	M - EPRM - 10	AIR AUTOMATIC JACK RECORD	1	
E - 11	M - EPRM - 11	HOSE HOLDER (6 - 8)	1	
E - 12	M - EPRM - 12	HOSE HOLDER (4 - 6)	1	

* RECOMMENDED SPARE PARTS LIST

**PRO (OMEGA 2000) POWDER COATING UNIT
PNEUMATIC CONNECTION SKETCH**



1.1 POWDER GUN

2.1 VACUUM UNITY and HOPPER

3.1 MAIN AIR REGULATOR (0.4 Bar)

3.2 DILUTION OUTLET (0-2.5 Bar)

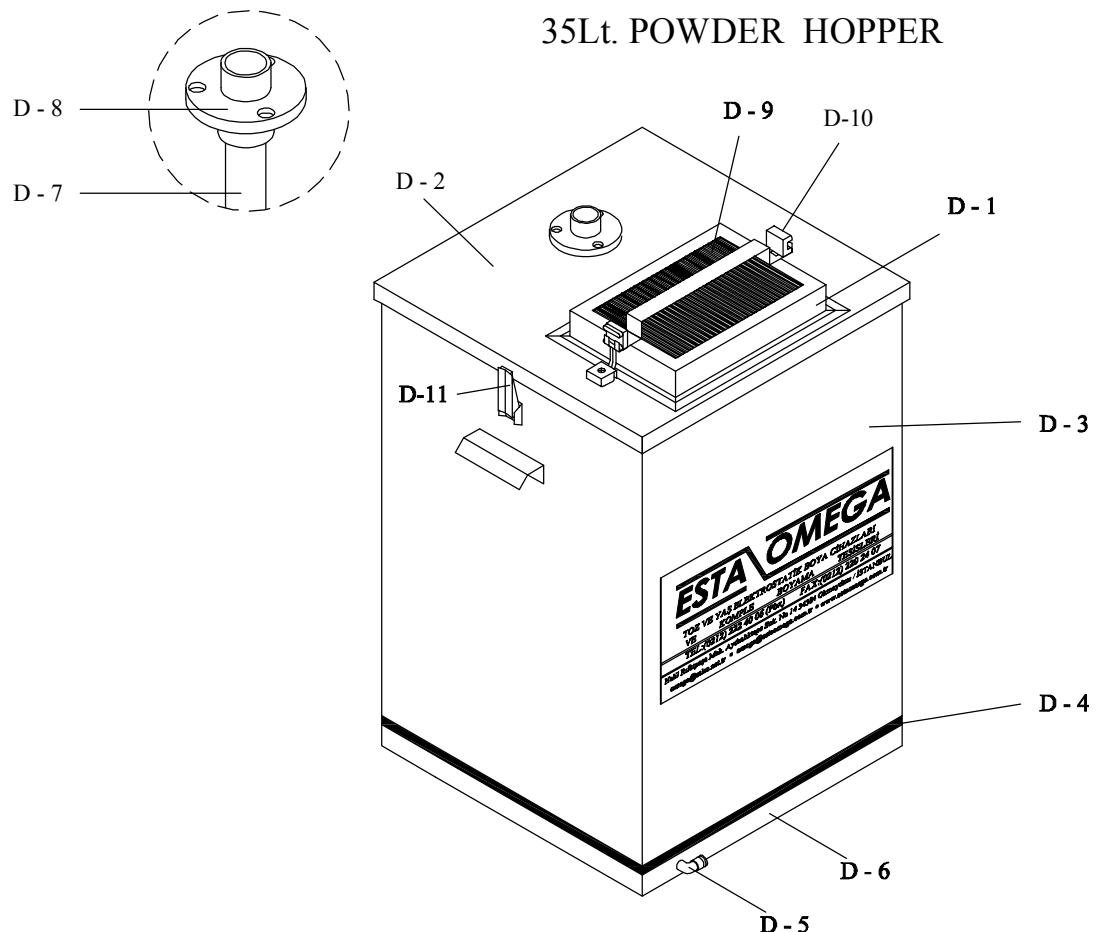
3.3 TURBULENCE AIR REGULATOR (0-2.5 Bar)

4.1 ON / OFF VALVE (2 / 2 - 1 / 8 ")

5.1 MAIN FILTER REGULATOR (0 - 12 Bar)

6.1 MIXER REGULATOR (0 - 2.5 Bar)

35Lt. POWDER HOPPER



NO	ORDER NO	DESCRIPTION	PIECE
D-1	M-03-D-20000	INSPECTION LID	1
D-2	M-03-D-20002	HOPPER LID	1
D-3	M-03-D-20001-1	HOPPER MAIN BODY	1
D-4	M-03-D-20004-1	FLUIDISING BED (325mm x 345mm)	1
D-5	M-YS-40005	FLUIDISING AIR INLET CONNECTION (1/8" ,4-6 ROTATED ELBOW)	1
D-6	M-03-D-20003-1	HOPPER BOTTOM	1
D-7	M-03-D-20006	PLUNGER SUCTION PIPE (Ø20mm)	1
D-8	-----	PLUNGER SUCTION HOLE	1
D-9	M-03-D-20100	PAPER FILTER	1
D-10	M-YS-10317	TIGHT RUBBER	2
D-11	OM-EL-40017	LATCH	2

TROUBLE SHOOTING

SYMPTOM

Main switch-on but indicator display doesn't light on

When pulling trigger, indicator display on, but there is no increase on High Voltage

When pulling trigger, indicator display on, but air regulator gauge doesn't work.

When pulling trigger, indicator display on, air regulator gauge on, but there is no powder

There is no fluidisation

The gun is powder spraying, without triggering

Powder doesn't stick to object static shocked on user

PROBABLE CAUSE AND REMEDY

- Check the fuses **14,16** from rear part of power pack.
- Check the mains supply if electricity is exist.

- Check the gun cable plug sockets.
- Check the fuses **14(3A)**
- Ifit still doesn't work call the our technical service

- Electro valve connection socket should be checked.
- Electronic control module repaired.

- Run out of powder in the hopper.
- Adjust fluidisation air.
- Clean plunger and plunger air circuit.
- Check plunger suction pipe.
- Check if plunger is properly fixed.
- Clogged hose or gun inside section (Clean or change)

- Check the fluidising air regulator
- Check the connection fluidisation air hose if it is broken
- Fluidising bed should be clogged duty of humidity and oil contamination

- Trigger should be remained open (Clean with air)
- Electro valve remained open

- Unit main connection earth should be checked
- Check earthing cable of unit.
- Check hangers cleaning.



TEKNİK MAKİNA SAN.VE TİC. A.Ş.

PART LIST

PRODUCT NO :

FOR DATE

PREPARED EQUIPMENT LIST

PACK NO	DESCRIPTION	PIECE	CONFIRM
PRO (OMEGA 2000) POWDER COATING EQUIPMENT (DEMONTED)			
1. COMPLETE UNIT PACK			
1.1.	POWDER COATING EQUIPMENT	1	<input type="checkbox"/>
1.2.	CONSOLE GROUP	1	<input type="checkbox"/>
	2.1 REGULATOR GROUP WITH GLASS	1	<input type="checkbox"/>
	2.2 PERPENDICULAR CONSOLE	1	<input type="checkbox"/>
	2.3 TRAY UPPER	1	<input type="checkbox"/>
	2.4 CARRIER CAR	1	<input type="checkbox"/>
1.3.	MANUAL COATING GUN PACK	1	<input type="checkbox"/>
	3.1 MANUAL COATING GUN	1	<input type="checkbox"/>
	3.2 POWDER HOSE (5 m)	1	<input type="checkbox"/>
	3.3 4-6 PNEUMATIC HOSE (5 m)	2	<input type="checkbox"/>
	3.4 6-8 PNEUMATIC HOSE (5 m)	1	<input type="checkbox"/>
	3.5 INJECTION GROUP	1	<input type="checkbox"/>
	3.6 AUTOMATIC SOCKET	1	<input type="checkbox"/>
	3.7 GUN HANGER	1	<input type="checkbox"/>
	3.8 PRODUCT GUIDE	1	<input type="checkbox"/>
1.4.	SPARE PARTS OF POWDER COATING SYSTEM		
	4.1 BIG SIZE DEFLECTOR (Ø26 mm)	1	<input type="checkbox"/>
	4.2 SMALL SIZE DEFLECTOR (Ø17 mm)	1	<input type="checkbox"/>
	4.3 INJECTION VENTURI (WITH - O-RING)	1	<input type="checkbox"/>
	4.4 FUSE (3 Amper)	2	<input type="checkbox"/>
	4.5 FUSE (1 Amper)	2	<input type="checkbox"/>
1.5.	CONNECTION PARTS		
	5.1 HOSE CONNECTOR (13 x 19 mm)	1	<input type="checkbox"/>
	5.2 BOLT (YSB) M6 x 15 mm	8	<input type="checkbox"/>
	5.3 STAMP M6	12	<input type="checkbox"/>
	5.4 BOLT (YSB) M6 x 25 mm	4	<input type="checkbox"/>
	5.5 CABLE CONNECTION (2,5 x 100 mm)	20	<input type="checkbox"/>
	5.6 BOLT (YSB) M5 x 100 mm	2	<input type="checkbox"/>
2.	HUPPER PACK (35 Lt)	1	<input type="checkbox"/>

THE EQUIPMENTS THAT ARE WRITTEN ABOVE HAVE BEEN PACKED AND CONTROLLED BY OUR SIDE

EXPORT

HOMELAND

STICKER

STICKER

INSTALLED BY :

MANUFACTURE EXECUTIVE :



PART LIST

PRODUCT NO :

FOR DATE

PREPARED EQUIPMENT LIST

PACK NO	DESCRIPTION	PIECE	CONFIRM
PRO (OMEGA 2000) POWDER COATING EQUIPMENT (COMPLETE)			
1. COMPLETE UNIT PACK			
1.1.	POWDER COATING EQUIPMENT	1	<input type="checkbox"/>
1.2.	PERPENDICULAR CONSOLE	1	<input type="checkbox"/>
1.3.	REGULATOR GROUP WITH GLASS	1	<input type="checkbox"/>
1.4.	TRAY UPPER	1	<input type="checkbox"/>
1.5.	CARRIER CAR	1	<input type="checkbox"/>
1.6.	GUN HANGER	1	<input type="checkbox"/>
1.7.	SPARE PARTS OF SYSTEM AND MANUAL COATING GUN PACK		
	7.1 MANUAL COATING GUN	1	<input type="checkbox"/>
	7.2 POWDER HOSE (5 m)	1	<input type="checkbox"/>
	7.3 4-6 PNEUMATIC HOSE (5 m)	2	<input type="checkbox"/>
	7.4 6-8 PNEUMATIC HOSE (5 m)	1	<input type="checkbox"/>
	7.5 INJECTION GROUP	1	<input type="checkbox"/>
	7.6 AUTOMATIC SOCKET	1	<input type="checkbox"/>
	7.7 PRODUCT GUIDE	1	<input type="checkbox"/>
	7.8 SPARE PARTS OF POWDER COATING SYSTEM		
	8.1 BIG SIZE DEFLECTOR (Ø26 mm)	1	<input type="checkbox"/>
	8.2 SMALL SIZE DEFLECTOR (Ø17 mm)	1	<input type="checkbox"/>
	8.3 INJECTION VENTURI (WITH - O-RING)	1	<input type="checkbox"/>
	8.4 FUSE (3 Amper)	2	<input type="checkbox"/>
	8.5 FUSE (1 Amper)	2	<input type="checkbox"/>
	8.6 HOSE CONNECTOR (13 x 19 mm)	1	<input type="checkbox"/>
	8.7 CABLE CONNECTION (2,5 x 100 mm)	20	<input type="checkbox"/>
2.	HUPPER PACK (35 Lt)	1	<input type="checkbox"/>

THE EQUIPMENTS THAT ARE WRITTEN ABOVE HAVE BEEN PACKED AND CONTROLLED BY OUR SIDE

EXPORT
HOMELAND

STICKER
STICKER

INSTALLED BY :

MANUFACTURE EXECUTIVE :