JET-POWER FILTER III 2700

WITH 6000VA UPS
(UNINTERRUPTIBLE POWER SUPLY)

PN 28.09.2701

OPERATION AND MAINTENANCE MANUAL

PN 28.04.2702

GPU - GROUND POWER UNIT

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SECTION 01 – DESCRIPTION

1.1 - GENERAL INFORMATION

1.1.1 - PRESENTATION

The **"JET-POWER FILTER III 2700", PN 28.09.2701** is a 28V static GPU, designed for use in aircraft as an external power source for powering onboard equipment, turbine starts, etc. It has a 6000VA UPS (Uninterruptible Power Supply) that sets it apart from all others. In case of interruption of the mains power supply, it continues to supply power to the aircraft without interruption during the transition.

This is very important to avoid losing the programming that was being done, giving time to start an emergency generator or save the programming. It also greatly assists in starting, because a good part of the current comes from the batteries, putting less strain on the local network, especially when using extension cords.

Transforms three-phase alternating current from the mains into 28-Volt direct current (adjustable on the panel) through six-phase transformation and rectification.

Provides a very pure output voltage with very low ripple (only 0.015% at 100A), even under normal load conditions, causing no interference with aircraft equipment.

Its regulation is excellent, thanks to the oversized transformer and rectifiers, with protection against short circuits, overcurrent, overvoltage, and phase loss. Because it has no moving active parts, it requires no maintenance. Its operation is silent, does not pollute, and has a very long lifespan. In its current version, current limiting is done automatically, without the need for adjustment by the operator. (It no longer has a current adjustment switch or an on/off switch for the electronic protection, which is always on).

The **"JET-POWER FILTER III 2700"** is manufactured according to rigorous technical standards and modern industrial technology, with a 3D structural design, using high-quality components and raw materials that guarantee its efficiency, safety, and durability.

1.1.2 - TECHNICAL INFORMATION

1.1.2.1 - INPUT: 380/220V, 50/60Hz, three-phase, without phase sequence, with ground on the blue or green/yellow cable.

1.1.2.2 - OUTPUT: 24 to 33 VDC, depending on the adjustment of the seven-position switch on the panel.

1.1.2.3 - MAXIMUM CURRENT: 2700A peak (supply capacity), 450A continuous for the 28V output. The current supplied by the "JET-POWER" during equipment testing depends fundamentally on the type of load applied to it.

1.1.2.4 - CURRENT LIMITER: Features automatic current limitation without the need for adjustment on the panel.

1.1.2.5 - MAXIMUM POWER: 40 kVA peak, at full load.

NOTE: The power required in the installation may be much lower if the maximum current is not used.

EXAMPLE: With a load of up to 1200A at the output, a maximum peak power of 22 kVA will be required. The nominal power of the network should be above 25 kVA.

1.1.2.6 - AUTOMATIC PROTECTION: (For the aircraft) It is always on and monitoring the output voltage, phase failure, and current. There is no longer a switch to turn it off. The system does not shut down the power supply, but it displays the presence of phases and overvoltage, if any, on the panel.

1.1.2.7 - RIPPLE: 0.08% at 300A (28-volt output). From 0 to 100A load, only 0.005 VAC. Ripple of 0.015%.

1.1.2.8 - DIMENSIONS: 1150 mm (length) x 710 mm (width) x 940 mm (height).

1.1.2.9 - WEIGHT: 300 Kg.

1.2 – SPECIFICATIONS

1.2.1 - POWER CABLES AND TRANSFORMER

1.2.1.1 - INPUT CABLE: (PN 28.01.1106)

The standard line input cable is four-core, brand “JET-POWER CABLE”, **orange color**, gauge 4 x 10mm² (4 x 7AWG), with a length of 20 (twenty) meters (65 ft), and is supplied with a plug for the mains. (Please inform us at the time of purchase which standard is used in your hangar or install another plug according to the local network, if it is different).

1.2.1.2 - 28VDC OUTPUT CABLE, exiting on the right: (PN 28.01.3305)

The standard line output cable is parallel, extra-flexible, 2x95mm² (4/0 AWG) gauge, class “5”, **orange color**, brand “JET-POWER CABLE”, with a length of 5 (five) meters (16 ft), and output plug brand SUPERSOM (PN 28.01.1139), model R65BS.

1.2.1.3 - TRANSFORMER: (380/220V PN 28.01.1173)

It is designed to supply low-voltage alternating current to the rectifier circuit.

It has 9 outputs (six-phase) for connections, which will result in 28VDC after rectification.

It has 24 input wires to provide voltage adjustment acting on the equipment input.

It can be used with both 220V and 380V.

It is manufactured in-house, with a peak power of 40kVA, a maximum output current of 2700A, a peak duration of 5 seconds, and a voltage drop of 17% at maximum load.

1.2.1.4 - UPS (Uninterruptible Power Supply).

It has a powerful 6000VA UPS. It is the type that is always coupled in parallel with the 28VDC output. When in operation, it is always receiving a load, even during float charging. Its function is twofold. It keeps the power supply providing voltage to the aircraft for several minutes (depending on the load) in the event of a power outage. This is very important to avoid interruptions during programming.

It assists in starting, not demanding much from the electrical grid, especially when using long extension cords.

It uses two "MOURA" brand special batteries.

It is wired in such a way that the power supply needs to be connected to the mains to start working. Without the power supply being connected to the outlet or if there is already no power, the power supply will not turn on.

When turned on, if the power goes out, it maintains the load at the output, and when the power returns, it starts already energized, without needing to press the power button.

1.2.2 - CONTROL PANEL (FRONT AND REAR PANEL)

1.2.2.1 - OUTPUT VOLTAGE ADJUSTMENT SWITCH: (PN 28.01.1150)

Has 7 adjustment positions, regulating the output voltage from 26 to 32VDC.

1.2.2.2 - INPUT VOLTAGE ADJUSTMENT SWITCH (380/220V).

Located on the underside of the panel, it should be used to adjust the input voltage according to the local power supply.

1.2.2.3 SERVICE OUTLETS 127 and 220V (20A).

Always provides 127 or 220V voltage, regardless of whether the power supply is connected to 220 or 380V. The 127V outlet only works when the power supply is connected. They are protected by 20 A circuit breakers.

1.2.2.4 "ON" (PN 28.01.1119) AND "OFF" (PN 28.01.1120) PUSHBUTTONS

These are double-contact switches that turn the equipment on and off. One contact turns on the power supply contactor and the other turns on the UPS contactor.

The off pushbutton also has the function of RESETTING the protection circuit. The UPS only turns off at the "Off" pushbutton. If you unplug it from the mains (simulating a power outage), it remains on, supplying 24 Volts to the output cable. If you plug it back in, the power supply remains on, supplying 28VDC.

1.2.2.5 LED INDICATOR OF EQUIPMENT ON: (PN 28.01.1124)

It is a blue LED and is located to the left of the pushbuttons. It is also lit when the UPS is on.

1.2.2.6 20A CIRCUIT BREAKER for service outlets: (PN 28.01.1745)

Protects the outlets against current exceeding their capacity or short circuit.

1.2.2.7 OVERVOLTAGE INDICATOR: (PN 28.01.1158)

There is 01 (one) indicator (red LED), which informs the operator of the presence of output voltage above 32V. It does not cause the power supply to shut down.

1.2.2.8 PHASE PRESENCE INDICATORS: (PN 28.01.1125)

There are 3 (three) green LEDs that only light up when the power supply is on.

If one goes out, it indicates that a phase is missing. Before using it, check and repair what caused the missing phase. These LEDs are monitored by the "Protection Circuit IV".

1.2.2.9 VOLTMETER: (PN 28.01.1127) Scale 0 – 40V.

Indicates the voltage at the 28V outputs, where the output cables are connected.

With a high load, the voltage in the aircraft will be lower than that indicated by this voltmeter, due to the voltage drop in the output cable and in the aircraft's internal cables. When the UPS is operating without mains power, the output voltage drops to 24VDC.

1.2.2.10 AMMETER: (PN 28.01.1128) Scale 0-2500A.

Indicates the current being supplied to the aircraft (the sum of the currents supplied by the rectifier and the battery).

The instrument is 60mV, moving coil, and has a 2500A scale.

1.2.3 REAR LOWER PANEL.

1.2.3.1 INPUT CABLE: (See also item 1.2.1)

Its position is on the lower left side of the front cover. It is normally supplied in a length of 20 meters, (65 ft) but a different length can be supplied upon request.

The ground is internally connected to the blue or green/yellow cable.

After several years of use, this cable may break near the internal rubber grommet due to a large number of bends, resulting in a missing phase or ground. If this occurs, cut it near the entry point and reconnect it.

1.2.4 FRONT PANEL

1.2.4.1 VENTILATION GRILLE:

Provides an outlet for heated air drawn in by the internal fans. Never obstruct this grid with plastic covers, etc...

1.2.4.2 IDENTIFICATION PLATE: (PN 28.02.1216)

Its characteristics are engraved here, such as three-phase input voltage, output voltage range (adjustable), maximum peak current, serial number and PN of the equipment.

1.2.4.3 OUTPUT CABLE: (See item 1.2.1)

Located on the right side. Can be connected to the aircraft connector.

1.2.5 SIDES

1.2.5.1 CABLE WINDING SUPPORTS:

It has supports for winding the input cable on one side and the output cable on the other.
When moving the equipment, avoid collisions with these supports to prevent crushing the casing.
Also wrap the three-phase extension cord, if it fits. (Maximum: 100m in 4x10mm² (4/0) cable).

1.2.5.2 VENTILATION LOUVERS:

It has 4 (four) rows of louvers for internal ventilation.
Do not use plastic covers to seal them.
Their position prevents the entry of water or rain splashes.

1.2.6 UPPER PART

1.2.6.1 FRONT AND COVER:

To open the power supply, first loosen the two screws (one on each side of the panel) and use the handle to open the front downwards. When removing the top cover, remove the screws on the lower part of the sides and lift the cover. This cover is heavy and you may need help from another person. It tilts forward if you loosen the two front screws.

It has a channel under the cover intended for the optional spotlight, to prevent rainwater from entering the central interior part.

1.2.7 LOWER PART

1.2.7.1 CASTERS:

It has 02 (two) fixed casters (PN 28.02.1208) and 02 (two) swivel casters (PN 28.02.1218), with 8” wheels, SCHIOPPA brand, of high durability.

1.2.7.2 CHASSIS: (PN 28.02.4292)

It is lightweight and highly mechanically resistant, being well-dimensioned for the weight it will support.

1.2.8 NOTES

All parts are manufactured following a standard of uniformity. They can be replaced at any time without the need for adjustments to the drilling, etc.

SECTION 02 – OPERATION

2.1 - GENERAL INFORMATION

2.1.1 - POWER SUPPLY IN AN AIRCRAFT:

A) Plug the extension cord into the outlet and bring it close to the power source. (If an extension cord is needed).

B) Place the “JET-POWER” near the aircraft's external power input outlet.

C) Connect the output plug of the cable coming from the front of the "JET-POWER" to the external power outlet on the aircraft, applying sufficient pressure to avoid poor contact.

D) Connect the input plug.

E) Before turning it on, check that the output voltage adjustment switch is in a position that does not cause overvoltage.

F) Turn it on using the green button and check that the 3 (three) phase indicators are lit. Do not use if any are off. A blue indicator light shows that the equipment is on (it also stays lit without mains power, indicating that the UPS is on).

NOTE: If the switch is in a position that does not cause overvoltage, simply use the on/off buttons to control the "JET-POWER" GPU. If there is a power outage, it will not turn on. The UPS only activates if there is already power and it is interrupted. For safety reasons, it will not turn on if the equipment is not powered.

G) Adjust the output voltage to approximately 28V, for normal use during equipment assembly, or according to the desired voltage at the moment. If the voltage is set above 32V, the equipment will indicate overvoltage. Reduce one position.

H) After use, the device must be switched off and disconnected from the aircraft.

NOTE: This equipment can be left on permanently (24 hours a day), however, heating of the output cable and output socket is normal when supplying current above 80A for a long time.

2.1.2 - OPERATION AND FUNCTIONING

To operate the “JET-POWER” correctly, the steps described in the previous item (2.1.1) must be followed, verifying that once everything is adjusted, simply use the on/off buttons to control the GPU.

The operation of the “JET-POWER” does not involve motors or generators, being completely static and silent.

It is a device that does not cause pollution, as it does not use a combustion engine.

Its transformer receives alternating current. The system takes alternating current from the hangar's power grid and transforms it into low-voltage direct current with very high purity and high current capacity. It is assisted by batteries, which are charged when the power source is on.

SECTION 03 – OPERATING THEORY

3.1 POWER GENERATION SYSTEM

The Power Generation System is achieved by transforming alternating current from the grid into low-voltage six-phase alternating current, which is subsequently rectified and filtered, and assisted by its two 12-Volt stationary batteries connected in series.

3.2 DESCRIPTION OF OPERATION

Its operation is completely static, not involving motors or generators.

The transformer receives electrical energy from the hangar's power grid, transforms the 220V or 380V three-phase energy into low-voltage six-phase current to supply 28V, but with a high current capacity. Current.

This energy is rectified by 6 (six) diodes, filtered by a very high-capacity filter, and delivered to the aircraft after passing through overcurrent, overvoltage, and phase failure sensors and being assisted by its 2 stationary 12-Volt batteries, connected in series.

SECTION 4 – DEFECTS

Below is a list of symptoms and possible causes that may prevent the normal operation of your “JET-POWER”. Always remember that the instructions must be followed correctly to avoid problems in the operation of the equipment.

Upon noticing an abnormality, first follow the steps listed on the following pages. If the problem persists, call our technical department for more detailed information, or contact the factory for technical assistance directly.

4.1 - OBSERVATIONS

A) We use 6 (six) SKR240/08 rectifiers, brand Semikron, for 28 VDC.

B) We use 47000µF/40V capacitors, Epcos brand.

C) We keep spare parts in stock.

D) Avoid unnecessarily opening the power supply.

E) First open the panel, removing one screw on each side with a 5mm or 3/16” Allen wrench.

F) If you need to open the cover, remove two screws on each side, close to the panel, and only loosen the two on the front. This cover tilts forward using these screws as an axis.

G) When opening, disconnect the internal connector from the cover. Reconnect it when closing.

4.1.1 - POSSIBLE DEFECTS

A) When turned on, the voltmeter does not indicate voltage.

CAUSE: Defect in the instrument or lack of power supply.

VERIFICATION: Test the instrument to see if the equipment turns on. If it does not turn on, check the connection to the electrical network.

B) Circuit breaker tripping immediately after the appliance is turned on.

CAUSE: Internal or external short circuit.

VERIFICATION: Check if there is a short circuit in the cables or output sockets. If it is normal, it is most likely that one or more rectifiers have short-circuited. To test them, do as indicated below:

- Test the secondary resistance. If it indicates 8 Ohms, it is normal. If it is close to zero Ohms, it indicates a short circuit in the cables or diodes.

- Open the front cover of the appliance. Disconnect the panel light plug and completely remove the top cover.

- Disconnect the 6 terminals of the rectifiers.

- With a multimeter, test the rectifiers (one by one).

- Replace the one(s) that are short-circuited.

- Use a socket wrench with a through hole to loosen the damaged rectifiers.

- Use original Semikron brand rectifiers.

- After replacing them, tighten everything lightly, without overdoing it.

- Turn the circuit breaker back on and test the device before closing it.

- When closing the device, reattach the cover connector.

C) The voltmeter continues to indicate voltage, with the device switched off.

CAUSE: With the output socket connected, the voltmeter may be indicating the voltage of the aircraft battery, or the voltage of the capacitors, if the load resistor is uninterrupted or has a loose cable at the terminal. (The voltage of the internal batteries is interrupted by the 24V contactor).

CHECK: Disconnect the socket from the aircraft. The voltmeter will indicate zero; if it does not, test the load resistors (2 of 4 Ohm in series).

D) Voltage dropping below 20 volts at peak start-up.

CAUSE: Voltage drop in the mains (see note below).

VERIFICATION: Measure the voltage at the outlet where the "JET-POWER" is connected (at the extension cord output, if connected to it). Without load, it should indicate at least 205 V. Ask the pilot to start the turbine. Measure at the same outlet, but now during the peak of the starting current. The voltage should not drop below 185V between phases. If it is within these limits, do the following:

- Adjust the output voltage to 30/31VDC for turbine start-up. This small increase already compensates for some of the losses in the mains and significantly improves the start-up.

- If the mains voltage is below the limits indicated above, check the installation; it is faulty, or the hangar's incoming power line.

- If it's the internal network, it needs to be reinforced with a good installation, and the device should be properly regulated; this problem should not occur.

- Bad batteries, with expired lifespan. Batteries are extremely important for starting performance.

NOTE: There is an internal voltage drop in the "JET-POWER" system, and losses at its output and input, up to the outlet. These losses have been minimized through oversizing of the internal and external conductors.

E) UPS is not staying on after a power outage.

CAUSE: Bad batteries or faulty battery terminals.

CHECK: Test and replace the batteries. As a safety measure, they should be replaced annually before they show any defects. The terminals also need to be kept free of corrosion and covered with high-temperature grease.

F) Electric shock to the equipment.

CAUSE: Current leakage from the mains to the equipment chassis.

VERIFICATION: Incorrect connection of the GROUND cable to the mains or plug:

GROUND cable not connected to the socket or equipment.

Cable cut flush with the plate at the cable entry, or flush with the fixing clamp.

NOTE: The GROUND cable is blue or green/yellow.

SECTION 05 – INSPECTIONS, VERIFICATIONS AND LUBRICATION

Periodically check the tightness of the outlet socket screws (every six months), tighten them if necessary, with a 5/32” Allen wrench.

No inspection, verification or lubrication is necessary on the internal parts of the equipment.

Lubricate the wheels with regular grease every year.

Check the cleanliness of the battery terminals every six months.

REPLACE BOTH BATTERIES ANNUALLY, EVEN IF THEY ARE IN GOOD CONDITION.

An emergency device must always be ready; it cannot wait for the batteries to fail before replacing them.

SECTION 06 – REMOVAL AND INSTALLATION

6.1 - REMOVAL

To remove the equipment from its installation location, simply wrap the cables around their housings, taking care not to crush the equipment casing due to excessive force exerted on the cable supports.

When packing, leave sufficient height so that the equipment wheels do not touch the bottom. Keep a safe distance from the sides, top, and back to avoid crushing the casing in case of mishandling.

Do not leave it unused for extended periods to prevent battery damage. Turn it on for at least one hour per week.

Do not tip the power supply over during transport, as this may cause battery leakage.

6.2 - INSTALLATION

A) Verify that the electrical network is 380 or 220V three-phase and capable of supplying 60A per phase, WITH THE MINIMUM POSSIBLE VOLTAGE DROP. B) Check if the equipment is connected according to the local voltage. Alter it if necessary.

C) Use a 63A, 4-pin, three-phase outlet, 220 or 380V.

D) The wiring to the outlet must come directly from the power input, right after the main switch. Use 4 cables.

E) Use the cable gauges according to the distance in meters from the connection point to the three-phase outlet where the "JET-POWER" will be connected, as per the specifications below:

Distance
For 220 Volts For 380 Volts
Phases Ground Phases Ground
Up to 20m Cable 10mm² 6mm² Cable 10mm² 6mm²
From 20 to 50m Cable 25mm² 10mm² Cable 16mm² 10mm²
From 50 to 75m Cable 35mm² 10mm² Cable 25mm² 10mm²
From 75 to 120m Cable 50mm² 25mm² Cable 35mm² 10mm²
From 120 to 150m Cable 70mm² 25mm² Cable 50mm² 25mm²
From 150 to 220m 95mm² 35mm² Cable 70mm² 25mm² Cable
From 220 to 300m 120mm² 50mm² Cable 95mm² 35mm² Cable

• GROUNDING IS ESSENTIAL.

• GROUNDING IS THE BLUE OR GREEN/YELLOW CABLE.

IMPORTANT NOTES:

These gauges may seem excessive for the current consumption of the "JET-POWER", but it is very important that the voltage drop in the network is as small as possible to avoid compromising its operation.

A large voltage drop, below the tolerable limits, can cause a significant voltage drop at the output. (Maximum drop of 15%).

Do not skimp by using cable gauges below those specified, so that the installation does not become problematic and insufficient for starting the turbines.

A good installation will guarantee years of trouble-free "hot start" service.

If not used for starting, consider 40% of the actual distance.

Follow the specifications correctly and avoid problems with insufficient current.

This GPU with UPS is the one that demands the least from the network.

SECTION 07 – ADJUSTMENTS AND TESTS

7.1 - ADJUSTMENT OF OUTPUT VOLTAGE

This is done on the panel, using the PN 28.01.1150 switch.

7.2 - CALIBRATION OF INSTRUMENTS

Every 6 months of operation, calibrate the instruments.

Adjust the "Zero" of the instrument pointer using the screw on the plastic display and the measurement on the externally accessible trimpot at the bottom of the instrument, comparing them with an instrument of known precision.

7.2.1 Ripple Test (If necessary)

- Connect a 100A RESISTIVE load to the equipment.

- Using an oscilloscope or a precision multimeter, measure the AC component at the 28VDC output.

- The reading should not exceed 0.15VAC. Normal values are 0.01VAC, with a ripple of 0.035% at 100A and 0.17VAC at 300A, with a ripple of 0.59%.

- If the values are higher, verify that the load is indeed RESISTIVE, test the capacitor to ensure it is not open, and check the filter choke for short circuits between turns.

7.2.1.1 OUTPUT VOLTAGE TEST

Check the voltage range at the equipment output according to the table below:

VOLTAGE ADJUSTMENT SWITCH POSITION OUTPUT VOLTAGE
01 25.2 VDC
02 26.7 VDC
03 27.4 VDC
04 28.6 VDC
05 29.8 VDC
06 30.2 VDC
07 32.5 VDC

NOTE: There may be a variation, higher or lower, depending on the variation in the input voltage of the electrical network.

SECTION 08 – CLEANING AND PAINTING

8.1 - CLEANING

Always keep your “JET-POWER” clean and avoid placing tools on the unit. Do not use a plastic cover to seal the side louvers and/or the front cooling grille.

To remove foreign deposits from the equipment, such as grease, oil, and water, polish it with a fine polishing wax.

8.2 - PAINTING

Avoid leaving your “JET-POWER” in the rain and sun to prolong the life of the paint.

The original paint is electrostatic powder coating, in white.

If touch-ups or repainting are necessary, use extra-fast synthetic enamel paint in the same color as the original.

SECTION 09 – REPAIRS

Repairs to be made to this power unit should be carried out as symptoms of defects described in section 04 of this manual appear.

To avoid further problems in the operation of the device, it is necessary to correctly follow the instructions that were given and, in case of persistence of the problem, contact the factory's technical department.

SECTION 10 – GENERAL PARTS LIST

ITEM	PART NUMBER / QPC	DESCRIPTION
1	28.01.3318/01	Chassis of the protective circuit and phase protector
2	28.01.4173/01	Three-phase transformer 220/380V
3	28.01.1117/01	Filter reactor with 50mm core.
4	28.01.1109/01	Epcos Capacitor 47000µF x 40V
5	28.01.1111/01	Complete Heat Sink 28VDC
6	28.01.1113/01	Fan VENTISILVA E11AL 115/230V
7	28.01.1136/01	WEG CWB50 Contactor
8	28.01.1139/01	28V Output Socket
9	28.01.3395/01	28VDC Output Cable
12	28.01.4146/01	4x10mm² Quadruple Input Cable
13	28.01.1199/02	100W, 4R Power Resistor
14	28.01.1930/01	63A Three-Pole Circuit Breaker
15	28.02.4981/02	Rear Cover Hinges
16	28.02.4204/01	Monobloc chassis (bottom of the box)
17	28.02.4205/01	Box cover
18	28.02.4206/01	Front of the box
19	28.02.4207/01	Output panel
20	28.02.4211/02	Cable support (panel side)
21	28.02.1212/02	Cable support (front grille side)
22	28.02.4213/01	Handle for handling
23	28.02.1202/02	Swivel caster – SCHIOPPA.
24	28.02.4205/02	Fixed caster – SCHIOPPA.
25	28.02.4286/01	Shnaider 100A contactor, 24VDC coil.
26	28.02.4287/02	MOURA 45Ah Stationary Battery
27	28.02.4281/01	Battery base with supports
28	28.02.1282/01	Positive interconnecting cables
29	28.02.4283/01	Central interconnecting cable
30	28.02.4293/01	Negative connecting cable
31	28.02.4263/01	Double green "On" button
32	28.02.4253/01	Double red "Off" button
33	28.02.4273/01	Battery charge control module
34	28.02.4243/01	Voltage control module

SECTION 11 – DESCRIPTION

11.1 - PRESENTATION

EXAMPLE: D1 to D6 PN 28.01.1116/06 SEMIKRON SKR240/08 diodes. The PN ending /06 indicates that it uses 6 pieces.

The group before the PN (D1 to D6) indicates the position in the schematic diagram.

- The first group of the PN, consisting of 2 (two) digits, identifies the SUPERSOM product (28, in the case of “JET-POWER”).

- The second group, consisting of 2 (two) digits, identifies the type of part according to this relationship:

01 - electrical-electronic circuit part or component.

02 - mechanical part.

03 - part for box assembly and finishing.

04 - technical publication.

09 - complete equipment.

- The following 4 (four) numbers indicate the part number.

- The last 2 (two) numbers indicate the QUANTITY PER SET (QPC).

- Immediately following is the description, with the manufacturer and the manufacturer's code.

11.2 - ELECTRONIC PROTECTION CIRCUIT IV (PN 28.00.3318)

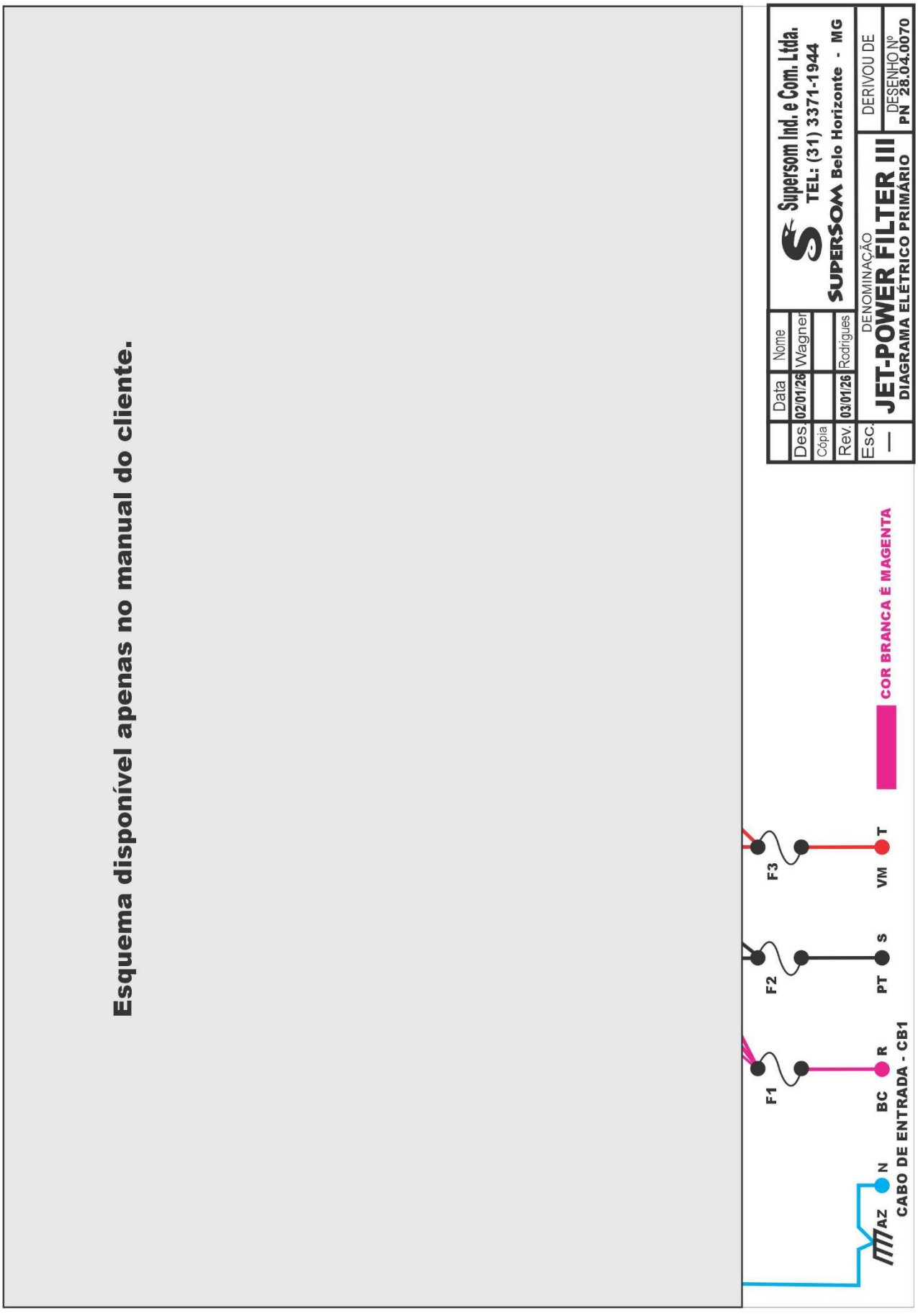
This circuit aims to perform the function of detecting phase failure in the equipment's power supply network, monitoring the voltage on the secondary side of the three-phase transformer. The voltage level is adjusted by Zener diodes and indicates the failure by a voltage drop below pre-established values in tests. Because it operates on the secondary side, it is isolated from the network and works with low voltages, increasing safety and durability.

- POWER CIRCUIT (PRIMARY)

This circuit is the main circuit of the power supply, receiving alternating current from the mains, transforming it into low voltage, and then rectifying it.

It can be configured to operate with 380 or 220 Volts input, simply by changing the voltage selector on the panel.

It has double ventilation that ensures the temperature remains within acceptable limits, and a three-phase equalized power transformer capable of supplying a continuous current of up to 600A.


Esquema disponível apenas no manual do cliente.
Supersom Ind. e Com. Ltda.
TEL: (31) 3371-1944
SUPERSOM Belo Horizonte - MG
Data Nome
Des. 02/01/26 Wagner
Cópia
Rev. 03/01/26 Rodrigues
Esc. —
DENOMINAÇÃO
JET-POWER FILTER III
DIAGRAMA ELÉTRICO PRIMÁRIO
DERIVOU DE
DESENHO Nº
PN 28.04.0070
CABO DE ENTRADA - CB1
AZ
N
BC
R
PT
S
VM
T
F1
F2
F3
COR BRANCA É MAGENTA

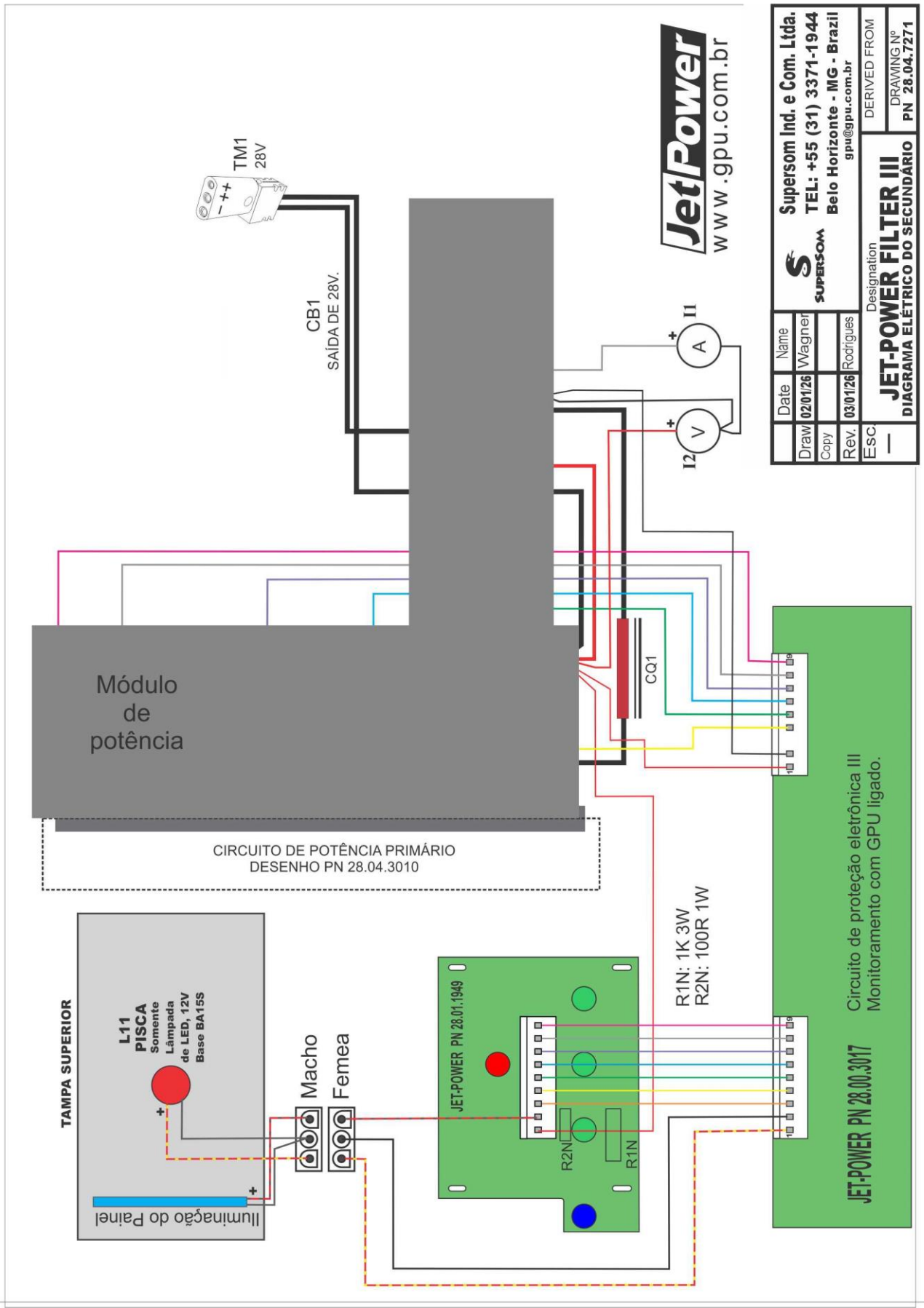
ITEM	PART NUMBER / QPC	DESCRIPTION
T1	28.01.4173/01	Transformer with 28V output, 600A.
CH1	28.01.1198/01	Margirius 380/220V switch.
CH2	28.01.1150/01	Kraus & Naimer 7-Position Switch.
CH3	28.01.1950/01	Kraus & Naimer 4-Position Switch.
B1	28.01.1120/01	On Pushbutton.
B2	28.01.1119/01	Off Pushbutton.
CT1	28.01.4336/01	WEG CWB50 Contactor, 220V
M1	28.01.1113/02	Ventisilva E11AL Fan, 220V
DJ1	28.01.1930/01	63A Three-Pole Circuit Breaker.
RSTN	28.01.4146/01	Input cable 4 x 10mm² x 25m
TM1	28.01.1186/01	127V black 20A service socket
TM2	28.01.1196/01	220V red 20A service socket

11-5 POWER CIRCUIT (SECONDARY)

This circuit is a continuation of drawing PN 28.04.7270, showing the low voltage and high current sections at the transformer output (T1).

The maximum current is 450 Amperes for the 28 Volt output.

It has a high filtering index due to the special construction of the filter reactor and the use of a high-value capacitor at the output.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SUPERSOM
Date Name
Draw 02/01/26 Wagner
Copy
Rev. 03/01/26 Rodrigues
Esc. —
Designation
JET-POWER FILTER III
DIAGRAMA ELÉTRICO DO SECUNDÁRIO
DERIVED FROM
DRAWING Nº
PN 28.04.7271
TM1
28V
CB1
SAÍDA DE 28V.
I1
A
I2
V
Módulo
de
potência
CQ1
CIRCUITO DE POTÊNCIA PRIMÁRIO
DESENHO PN 28.04.3010
R1N: 1K 3W
R2N: 100R 1W
JET-POWER PN 28.01.1949
R2N
R1N
Circuito de proteção eletrônica III
Monitoramento com GPU ligado.
JET-POWER PN 28.00.3017
TAMPA SUPERIOR
L11
PISCA
Somente
Lâmpada
de LED, 12V
Base BA15S
Macho
Femea
Iluminação do Painel

ITEM	PART NUMBER / QPC	DESCRIPTION
T1	28.01.4173/01	Transformer with 28V output
D1 to D6	28.01.4116/06	Semikron SKR240/08 diode
R1	28.01.1199/02	100W, 4R power resistor
C1	28.01.1109/01	Epcos 47000 µF x 40V capacitor
I1	28.01.1128/01	0-2700A ammeter, Renz brand
I2	28.01.1127/01	0-40V voltmeter, Renz brand
PL1	28.01.1139/01	Standard 28VDC output plug
CQ1	28.01.1117/01	Special filter choke for Embraer
CB1	28.01.3395/01	Output cable, 2x95mm² x 5m
PL 1	28.01.3318/01	Protection Circuit IV
PL 2	28.01.1954/01	LED board
BL1	28.01.7000/01	LED panel lighting bar.

TECHNICAL DIRECTOR: Wagner Agostinho de Lima Rodrigues

DOCUMENT PREPARED AND MANUFACTURED BY:

Wagner Agostinho de Lima Rodrigues

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Special Edition, January 2, 2026.