

SECTION 6 MAINTENANCE




6.1 SPARE PARTS

It is possible to request any spare part through written request specifying:

MACHINE TYPE;
MACHINE SERIAL NUMBER;
DATE OF DELIVERY.

This procedure will expedite the exact Spare Parts identification in the List of machine components.

6.2 SAFETY RULES FOR THE MAINTENANCE

-  For complex interventions on the machine use only ARTlified engineering
-  Never touch connections discoveries and components, without first having disconnected power electricity (**the main power switch must be turned off**)
-  **Disconnect power electricity** before removing any inspection panel or protection panel for the replacement of any electrical component
- **Do not wear rings, watches, bracelets** etc. during maintenance operations
- **Use a rubber insulating mat** (if possible) under the feet during the maintenance; avoid operating on wet floors or in very humid environments
- **Always use protective gloves and anti-tear dress** that cover almost the whole body
- **Do not use** water drills or pins for cleaning electrical machines
- **During the maintenance of machines**, the plant must be turned off and the process air in any case does not enter in the equipment during the work
- **Before entering** inside of any equipment, ensure good ventilation through the inspection doors or manholes



- **Perform maintenance** always with an adeARTte level of illumination, in case of low-light use of portable lighting system
- **During internal inspection** an assistant should be always present outside of the equipment
- **For the use of substances** needed during normal operation (reagents, etc.) or during maintenance operations (lubricants, etc.), see the technical specifications of the product (attached product sheets for the first starting supply by airprotech srl)
- **Prepare always** fire-extinguishers or fire extinguishing system device in the working area
- **Place reporting signs** in the perimeter of the working area.

6.3 ORDINARY AND PREVENTIVE MAINTENANCE

An adeARTte and systematic maintenance of the plant is the primary factor for a good duration in operating conditions of the equipment's and ensures a good security system.



WARNING

In the annexed manual all the maintenance of the plant equipment is described in detail.



WARNING

To perform the operations of the technical maintenance a responsible must wear protection in use for similar operations and follow security procedures.



INSTRUCTION MANUAL

FILTER UNIT

OPERATION	FREQUENCY	OPERATOR
Check the condition of the internal/external filter box, paying attention to the condition of the fixing springs and control devices	Weekly	client
Check the condition of the filter elements and replace them if necessary	(100 h)	client

BLOWER

OPERATION	FREQUENCY	OPERATOR
Check expansion joint	ARTrterly (2200 h)	client
Shaft bearing greasing	See builder schedule	client
Check cleaning and shaft bearing state in case of blower noise	Yearly (8500 h)	client
Check fan wheel state	Yearly (8500 h)	client

ELECTRICAL MOTORS

OPERATION	FREQUENCY	OPERATOR
Shaft bearing greasing (if not self-lubricating bearing)	See builder schedule	client
Verify motor general working condition (noise, overheating, ...)	Monthly (720 h)	client

BURNER

OPERATION	FREQUENCY	OPERATOR
Check microratio valve leverage + natural gas valve greasing	Half-yearly (4300 h)	client
Ignition electrode cleaning	Half-yearly (4300 h)	client
U.V. cell cleaning	Half-yearly (4300 h)	client
Check inlet natural gas pressure	Monthly (720 h)	client
Check inlet natural gas train filter	Yearly (~ 8500 h)	client
Check of all pressure-switch state	Yearly (~ 8500 h)	client
Drain condensate by apposite valves	Monthly	client
Check burner refractory ring (inside combustion chamber)	Yearly (~ 8500 h)	client
Verify burner microratio setting	Yearly (~ 8500 h)	client

THERMAL COMBUSTION UNIT

OPERATION	FREQUENCY	OPERATOR
Check the status of internal insulation ceramic fiber	Yearly (8500 h)	client





WARNING

For the internal inspection of the thermal combustion unit, which requires the opening of manhole and inspection door is absolutely necessary to wait for the complete cooling plant.

For decreases the cooling time of the combustion unit, is possible to start the cooling plant sequence (see section 5 of instructions manual).

For the internal inspection of the thermal combustion unit follow safety sign:



COMBUSTOR VALVES

OPERATION	FREQUENCY	OPERATOR
Check opening/closing valve movement	Monthly (720 h)	client
Replace automatic greasing cartridge	When needed	client
Revision	Yearly (8500 h)	airprotech srl

COMBUSTOR VALVES PNEUMATIC CYLINDER

OPERATION	FREQUENCY	OPERATOR
Verify cylinder stroke	Half-yearly (4300 h)	client
Check air leakage	Monthly (720 h)	client
Check sensor operating and correct installation	ARTrterly (2200 h)	client
Check fixing screws tightening	ARTrterly (2200 h)	client
Check electrical and pneumatic connection	ARTrterly (2200 h)	client

COMPRESSED AIR

OPERATION	FREQUENCY	OPERATOR
Check and remove possible leakage	Monthly (720 h)	client



BUTTERFLY VALVES

OPERATION	FREQUENCY	OPERATOR
Check opening/closing valve movement.	Half-yearly (4300 h)	client
Replace seals	When needed/Yearly	client

BUTTERFLY VALVES ACTUATOR

OPERATION	FREQUENCY	OPERATOR
Check fixing screws tightening	ARTrterly (2200 h)	client
Check limit-switch box state	Half-yearly (4300 h)	client
Check air leakage	Monthly (720 h)	client

PRESSURE TRANSMITTER

OPERATION	FREQUENCY	OPERATOR
Drain condensate	Weekly	client
Check calibration	Yearly (8500 h)	client

CONTROL BOARD

OPERATION	FREQUENCY	OPERATOR
Control board check (dust, moisture, terminal board state, relay and remote-control switch, etc.)	Yearly (8500 h)	client
Check terminal board tightening	Yearly (8500 h)	client
Verify control board door and seals general condition	Yearly (8500 h)	client
Check control board lamp state	Monthly (720 h)	client



INSTRUCTION MANUAL

SYSTEM

OPERATION	FREQUENCY	OPERATOR
Verify process parameters (temperature, pressure ...)	Weekly	client



WARNING

In the DATA-SHEET annex all the maintenance of the plant equipment is described in detail.



WARNING

To perform the operations of the technical maintenance a responsible must wear protection in use for similar operations and follow security procedures.



SECTION 7 EMERGENCY INTERVENTION

7.1 OPERATION DYSFUNCTIONAL CONDITIONS

PLANT

ALARM	DESCRIPTION	CAUSES	EFFECTS	CHECKS TO BE EXECUTED
TAH-02A	Chamber A outlet Process gas high temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-02A working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TAHH-02A	Chamber A outlet Process gas very high temperature	Oxidizer malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-02A working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TAH-02B	Chamber B outlet Process gas high temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-02B working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TAHH-02B	Chamber B outlet Process gas very high temperature	Oxidizer malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-02B working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TAH-02C	Chamber C outlet Process gas high temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-02C working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TAHH-02C	Chamber C outlet process gas very high temperature	Oxidizer malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-02C working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TAH-02D	Chamber C outlet Process gas high temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-02D working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TAHH-02D	Chamber C outlet process gas very high temperature	Oxidizer malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-02D working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TAH-02E	Chamber C outlet Process gas high temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-02E working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working



INSTRUCTION MANUAL

ALARM	DESCRIPTION	CAUSES	EFFECTS	CHECKS TO BE EXECUTED
TAHH-02E	Chamber C outlet process gas very high temperature	Oxidizer malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-02E working Emissions from department Ceramic beds condition Burner B-01A/B/ secondary gas train working
TALL-03A/B	Combustion chamber very low temperature	Oxidizer malfunction Various causes	Alarm O/A + PLANT SHUTDOWN	TE-03A/B working Set TIC Burner B-01A/B/ secondary gas train working
TAL-03A/B	Combustion chamber low temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-03A/B working Set TIC Burner B-01A/B/ secondary gas train working
TAH-03A/B	Combustion chamber high temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-03A/B working Set TIC Emissions from department Burner B-01A/B/ secondary gas train working
TAHH-03A/B	Combustion chamber very high temperature	Oxidizer malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-03A/B working Set TIC Emissions from department Burner B-01A/B/ secondary gas train working
TALL-03C/D	Combustion chamber very low temperature	Oxidizer malfunction Various causes	Alarm O/A + PLANT SHUTDOWN	TE-03C/D working Set TIC Burner B-01A/B/ secondary gas train working
TAL-03C/D	Combustion chamber low temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-03C/D working Set TIC Burner B-01A/B/ secondary gas train working
TAH-03C/D	Combustion chamber high temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-03C/D working Set TIC Emissions from department Burner B-01A/B/ secondary gas train working
TAHH-03C/D	Combustion chamber very high temperature	Oxidizer malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-03C/D working Set TIC Emissions from department Burner B-01A/B/ secondary gas train working
TAL-03S	Combustion chamber low temperature	Oxidizer malfunction Various causes	Alarm O/A + safe actions (see section 5)	TE-03A/B OR TE-03C/D working Set TIC Burner B-01A/B/ secondary gas train working
TAHH-03S	Combustion chamber very high temperature	Oxidizer malfunction Various causes	Alarm O/A + safe actions (see section 5)	TE-03A/B OR TE-03C/D working Set TIC Emissions from department Burner B-01A/B/ secondary gas train working
TAH-04	Oxidizer outlet high temperature	Oxidizer malfunction Various causes	Alarm O/A	TE-04 working Emissions from department Burner B-01A/B/ secondary gas train working Poppet valves



INSTRUCTION MANUAL

ALARM	DESCRIPTION	CAUSES	EFFECTS	CHECKS TO BE EXECUTED
TAHH-04	Oxidizer outlet very high temperature	Oxidizer malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-04 working Emissions from department Burner B-01A/B/ secondary gas train working Poppet valves
TAH-101A	Blower BL-01 bearings high temperature	TE-101A failure Blower BL-01 malfunction	Alarm O/A	TE-101A working Blower working Bearings condition
TAHH-101A	Blower BL-01 bearings very high temperature	TE-101A failure Blower BL-01 malfunction	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-101A working Blower working Bearings condition
TAH-101B	Blower BL-01 bearings high temperature	TE-101B failure Blower BL-01 malfunction	Alarm O/A	TE-101B working Blower working Bearings condition
TAHH-101B	Blower BL-01 bearings very high temperature	TE-101B failure Blower BL-01 malfunction	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	TE-101B working Blower working Bearings condition
PAL-03	Compressed air low pressure	Net alimentation leakage	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Compressed air line condition PSL-03 working Compressed air line valves
dPAL-01	Low pressure over fan BL-01	Malfunction combustion unit, BL-01 and various causes	Alarm O/A + safe actions (see section 5)	BL-01 frequency converter working Ambient / process air line valves
PALL-101	Process air inlet very low pressure	Malfunction combustion unit, BL-01 and various causes	Alarm O/A + PLANT SHUTDOWN	BL-01 frequency converter working Set PIC-101 Process air line valves
PAL-101	Process air inlet low pressure	Malfunction combustion unit, BL-01 and various causes	Alarm O/A	BL-01 frequency converter working Set PIC-101 Process air line valves
PAH-101	Process air inlet high pressure	Malfunction combustion unit, BL-01 and various causes	Alarm O/A	BL-01 frequency converter working Set PIC-101 Process air line valves
PAHH-101	Process air inlet very high pressure	Malfunction combustion unit, BL-01 and various causes	Alarm O/A + PLANT SHUTDOWN	BL-01 frequency converter working Set PIC-101 Process air line valves
ZAL-01A	Oxidizer valve KV-01A anomaly	Valve KV-01A malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01A condition Pneumatic alimentation Limit switch working
ZAH-01A	Oxidizer valve KV-01A anomaly	Valve KV-01A malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01A condition Pneumatic alimentation Limit switch working



INSTRUCTION MANUAL

ALARM	DESCRIPTION	CAUSES	EFFECTS	CHECKS TO BE EXECUTED
ZAL-01B	Oxidizer valve KV-01B anomaly	Valve KV-01B malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01B condition Pneumatic alimentation Limit switch working
ZAH-01B	Oxidizer valve KV-01B anomaly	Valve KV-01B malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01B condition Pneumatic alimentation Limit switch working
ZAL-01C	Oxidizer valve KV-01C anomaly	Valve KV-01C malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01C condition Pneumatic alimentation Limit switch working
ZAH-01C	Oxidizer valve KV-01C anomaly	Valve KV-01C malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01C condition Pneumatic alimentation Limit switch working
ZAL-01D	Oxidizer valve KV-01D anomaly	Valve KV-01D malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01D condition Pneumatic alimentation Limit switch working
ZAH-01D	Oxidizer valve KV-01D anomaly	Valve KV-01D malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01D condition Pneumatic alimentation Limit switch working
ZAL-01E	Oxidizer valve KV-01E anomaly	Valve KV-01E malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01E condition Pneumatic alimentation Limit switch working
ZAH-01E	Oxidizer valve KV-01E anomaly	Valve KV-01E malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-01E condition Pneumatic alimentation Limit switch working
ZAL-02A	Oxidizer valve KV-02A anomaly	Valve KV-02A malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02A condition Pneumatic alimentation Limit switch working



INSTRUCTION MANUAL

ALARM	DESCRIPTION	CAUSES	EFFECTS	CHECKS TO BE EXECUTED
ZAH-02A	Oxidizer valve KV-02A anomaly	Valve KV-02A malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02A condition Pneumatic alimentation Limit switch working
ZAL-02B	Oxidizer valve KV-02B anomaly	Valve KV-02B malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02B condition Pneumatic alimentation Limit switch working
ZAH-02B	Oxidizer valve KV-02B anomaly	Valve KV-02B malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02B condition Pneumatic alimentation Limit switch working
ZAL-02C	Oxidizer valve KV-02C anomaly	Valve KV-02C malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02C condition Pneumatic alimentation Limit switch working
ZAH-02C	Oxidizer valve KV-02C anomaly	Valve KV-02C malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02C condition Pneumatic alimentation Limit switch working
ZAL-02D	Oxidizer valve KV-02D anomaly	Valve KV-02D malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02D condition Pneumatic alimentation Limit switch working
ZAH-02D	Oxidizer valve KV-02D anomaly	Valve KV-02D malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02D condition Pneumatic alimentation Limit switch working
ZAL-02E	Oxidizer valve KV-02E anomaly	Valve KV-02E malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02E condition Pneumatic alimentation Limit switch working
ZAH-02E	Oxidizer valve KV-02E anomaly	Valve KV-02E malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-02E condition Pneumatic alimentation Limit switch working
ZAH-03A	Valve KV-03A anomaly	Valve KV-03A malfunction Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START	Valve KV-03A condition Pneumatic alimentation Limit switch working



INSTRUCTION MANUAL

ALARM	DESCRIPTION	CAUSES	EFFECTS	CHECKS TO BE EXECUTED
ZAH-03B	Valve anomaly KV-03B	Valve malfunction KV-03B Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START	Valve KV-03B condition Pneumatic alimentation Limit switch working
ZAH-03C	Valve anomaly KV-03C	Valve malfunction KV-03C Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START	Valve KV-03C condition Pneumatic alimentation Limit switch working
ZAH-03D	Valve anomaly KV-03D	Valve malfunction KV-03D Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START	Valve KV-03D condition Pneumatic alimentation Limit switch working
ZAH-03E	Valve anomaly KV-03E	Valve malfunction KV-03E Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START	Valve KV-03E condition Pneumatic alimentation Limit switch working
ZAL-04A	Valve anomaly KV-04A	Valve malfunction KV-04A Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Valve KV-04A condition Pneumatic alimentation Limit switch working
ZAH-04A	Valve anomaly KV-04A	Valve malfunction KV-04A Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Valve KV-04A condition Pneumatic alimentation Limit switch working
ZAL-04B	Valve anomaly KV-04B	Valve malfunction KV-04B Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Valve KV-04B condition Pneumatic alimentation Limit switch working
ZAH-04B	Valve anomaly KV-04B	Valve malfunction KV-04B Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Valve KV-04B condition Pneumatic alimentation Limit switch working
ZAL-101	Process gas valve KV-101 anomaly	Valve malfunction KV-101 Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-101 condition Pneumatic alimentation Limit switch working
ZAH-101	Process gas valve KV-101 anomaly	Valve malfunction KV-101 Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Valve KV-101 condition Pneumatic alimentation Limit switch working
ZAL-102	Ambient air inlet to oxidizer valve KV-102 anomaly	Valve malfunction KV-102 Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Valve KV-102 condition Pneumatic alimentation Limit switch working / Positioner working
ZAH-102	Ambient air inlet to oxidizer valve KV-102 anomaly	Valve malfunction KV-102 Various causes	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + safe actions (see section 5)	Valve KV-102 condition Pneumatic alimentation Limit switch working / Positioner working
YS-01	Blower anomaly BL-01	MBL-01 electric over absorption	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	BL-01 electric alimentation MBL-01 electric motor



INSTRUCTION MANUAL

ALARM	DESCRIPTION	CAUSES	EFFECTS	CHECKS TO BE EXECUTED
YS-02	Blower BL-02 anomaly	MBL-02 electric over absorption	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	BL-02 electric alimentation MBL-02 electric motor
VAH-101A	Blower BL-01 high vibration	VT-01 failure Blower BL-01 malfunction	Alarm O/A	VT-101A working Blower BL-01 working Bearings condition
VAHH-101A	Blower BL-01 very high vibration	VT-01 failure Blower BL-01 malfunction	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + it stops blower BL-01	VT-101A working Blower BL-01 working Bearings condition
VAH-101B	Blower BL-01 high vibration	VT-01 failure Blower BL-01 malfunction	Alarm O/A	VT-101B working Blower BL-01 working Bearings condition
VAHH-101B	Blower BL-01 very high vibration	VT-01 failure Blower BL-01 malfunction	Alarm O/A + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN + it stops blower BL-01	VT-101B working Blower BL-01 working Bearings condition



INSTRUCTION MANUAL

BURNERS / SECONDARY GAS TRAIN ANOMALY

ALARM	DESCRIPTION	CAUSES	EFFECTS	CHECKS TO BE EXECUTED
PAL-01A	Natural gas low pressure to the burner B-01A	Net alimentation leakage	Alarm O/A + BURNER B-01A BLOCK / SECONDARY GAS TRAIN BLOCK + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Natural gas line PSL-01A working
PAH-01A	Natural gas high pressure at burner B-01A inlet	Burner B-01A anomaly	Alarm O/A + BURNER B-01A BLOCK / SECONDARY GAS TRAIN BLOCK + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Natural gas line PSH-01A working
PAL-01B	Natural gas low pressure to the burner B-01B	Net alimentation leakage	Alarm O/A + BURNER B-01B BLOCK / SECONDARY GAS TRAIN BLOCK + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Natural gas line PSL-01B working
PAH-01B	Natural gas high pressure at burner B-01B inlet	Burner B-01B anomaly	Alarm O/A + BURNER B-01B BLOCK / SECONDARY GAS TRAIN BLOCK + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Natural gas line PSH-01B working
PAH-02	Natural gas high pressure on secondary gas train	Secondary gas train anomaly	Alarm O/A + SECONDARY GAS TRAIN BLOCK + PLANT SHUTDOWN + safe actions (see section 5)	Natural gas line PSH-02 working
XA-01	Lack of flame Combustion air low flow Valve TCV-01 anomaly	Flame detector malfunction Combustion air low flow TCV-01 malfunction	Alarm O/A + PLANT SHUTDOWN	Cleaning condition of the flame detector UV cell Combustion air line Valve TCV-01 condition PSL-04 working
XA-02	Leak test secondary gas line	Solenoid valve or their connection leakage	Alarm O/A + SECONDARY GAS TRAIN BLOCK + PLANT SHUTDOWN	Natural gas line PDSLH-02 working SOV-04/05 working
XA-03A	Leak test main gas line Burner B-01A	Solenoid valve or their connection leakage	Alarm O/A + BURNER B-01A BLOCK / SECONDARY GAS TRAIN BLOCK + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Natural gas line PDSLH-01A working SOV-01A/02A/03A working



INSTRUCTION MANUAL

XA-03B	Leak test main gas line Burner B-01B	Solenoid valve or their connection leakage	Alarm O/A + BURNER B-01B BLOCK / SECONDARY GAS TRAIN BLOCK + FAILED CONSENT TO THE PLANT START + PLANT SHUTDOWN	Natural gas line PDSLH-01B working SOV-01B/02B/03B working
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