



NLC TAMILNADU POWER LIMITED
DEPARTMENTAL PROCEDURE MANUAL
(Incorporating ISO 9001:2015, ISO 14001: 2015 & ISO 45001: 2018)

TITLE:- SOP FOR INSTRUMENT AIR COMPRESSORS

Doc. ID: NTPL/OPRN/SOP-08

PURPOSE: To define a procedure for Instrument Air Compressors

SCOPE: This SOP is applicable at NTPL

RESPONSIBILITY: Boiler OS / Operation Engineer

PERFORMANCE CRITERIA:

ACTIVITIES:

3 nos. of Instrument air compressors (Make :- Atlas Copco Model ZR275) are available in **Compressor Room** for supply of pressurized air to all Pneumatic valves throughout Boiler and Turbine area of both Units as well as D.M. water Plant. The Instrument air pressure is normally maintained at around 6-7ksc with any two compressors (out of IAC 1, IAC2, IAC 3) in continuous service.

Before starting any one Instrument Air Compressor (IAC) –

- Ensure that no L.C. is pending for the compressor.
- Ensure that 0.4 KV power supply is available to the compressor.
- Ensure that D.M. water flow to the compressor is made through. Ensure that all the Globe valves in Inlet and Outlet lines are open and D.M. water flow is available from either Unit 1 or Unit 2. D.M. water flow can be ensured by checking the pressure gauge in the Inlet and Outlet lines. The D.M. water pressure will be about 2.8 ksc.
- Ensure that oil level in oil level gauge is more than 70%.
- Ensure that the Inlet and Outlet valves in drier are open and the bypass valve is closed.
- Ensure that the PVC Discharge globe valve after drier is open.
- Ensure that the gate valve in Interstage tapping to Drier is open.
- Ensure that the Interconnection in the discharge line of the Compressor before drier is closed (keep the PVC Globe valve in the Interconnection line closed).
- Beside the display panel, Start and Stop buttons are available. Emergency Push Button is also available beside the display panel.
- In the display panel, the healthiness of the compressor can be checked by scrolling through the following Menu :-
 - *Status Data* :-
 - a) Protection – **Any protection acting** can be checked.



NLC TAMILNADU POWER LIMITED
DEPARTMENTAL PROCEDURE MANUAL
(Incorporating ISO 9001:2015, ISO 14001: 2015 & ISO 45001: 2018)

TITLE:- SOP FOR INSTRUMENT AIR COMPRESSORS

Doc. ID: NTPL/OPRN/SOP-08

- b) Service – Whether servicing is required for the compressor.
- c) Expansion Module – Status of Electrical controls.
- *Measured Data* :- This will display all the operating parameters (Outlet pressure, dp Air Filter, Oil pressure, Intercooler Pressure, Compressor outlet temperature, Element 1 outlet temperature, Element 2 Inlet temperature, Element 2 Outlet temperature, Cooling water IN temperature, L.P. cooling water Out temperature, Cooling water out temperature, Oil temperature, Emergency Stop). Any discrepancy in the above parameters must be noted and informed to Maintenance for rectification.
- *Counters* : - This will display Running hours, Loaded Hours, Motor starts, Module hours, Load relays.
- *Modify Parameters* :-
 - a) Parameters – The following parameters can be noted and modified (Loading pressure, Unloading pressure, Loading pressure 1, Loading pressure 2, Y time, Load delay, Number of starts/day, Minimum stop time, Programmed stop time, Communication time out).
 - b) Protections.
 - c) Service Plan.
 - d) Clock function.
 - e) Configuration – whether compressor to be started from Local or Remote.
- *Service* : - Service timer (running hours).
- *Saved data* : - All data from last 5 shutdowns.

Once all the above mentioned checks are found Ok, Loading and Unloading pressure to be set at 6.6 Ksc and 7.2 ksc. Emergency Push Button should be in released condition. Then Instrument air Compressor can be started. If all parameters are found Normal, it can be kept in continuous service. Readings should be noted in every shift.

When both Units are in service, any 2 numbers of Instrument Air Compressors should be kept in continuous service in order to maintain Instrument air pressure at 6 ksc.

RECORDS:

Record Title	Record No.	Locatio	Responsibilit	Retention Time
--------------	------------	---------	---------------	----------------



NLC TAMILNADU POWER LIMITED
DEPARTMENTAL PROCEDURE MANUAL
(Incorporating ISO 9001:2015, ISO 14001: 2015 & ISO 45001: 2018)

TITLE:- SOP FOR INSTRUMENT AIR COMPRESSORS

Doc. ID: NTPL/OPRN/SOP-08

		n	y	

VERIFICATION, CORRECTIVE AND PREVENTIVE ACTION:

HOD shall ensure adequacy and implementation of the above procedure through periodic interaction with department personnel, and regular review and monitoring of the processes and compliances. In case of any observed deviation, corrective and preventive action shall be immediately undertaken.

HOD