



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

TITLE:- SOP FOR Main Turbine Hydraulic Over Speed Test

Doc. ID: NTPL/OPRN/SOP-10

PURPOSE : Define a procedure of Main Turbine Hydraulic Over Speed Test

SCOPE : This SOP is applicable at NTPL

RESPONSIBILITY : Shift Engineer / Operation Engineer

PERFORMANCE CRITERIA :

Over Speed Test Device Description: -

The function of the test device is to test the healthiness of over speed trip device and trip bolt without actually raising the speed.

Test device consists of three valves combined in one valve block. The valve on left is held at upper position by spring. In this position Aux. trip oil can pass to over speed trip device. When the knob is pressed, Aux. trip oil circuit to over speed trip device is kept blocked apart from a small quantity of fluid which is permitted to pass to fill up the empty pipe after the test operation.

The center valve on moving downwards by rotating hand wheel admits test oil to the eccentric bolts causing them to protrude out of turbine shaft to strike against the pawl of trip device. The valve can be operated by motor during ATT.

The third valve on right side is used for resetting the over speed trip device after the test operation. When knob is pushed in against spring, control oil enters Aux. start up oil circuit of over speed trip device and latches the over speed trip device. Normally reset is done by Aux. startup oil during unit start up.

ACTIVITIES:

Before starting the test: -

- Aux. Trip Oil pressure gauge and transmitter should be healthy.
- Test oil gauge and transmitter should be healthy.
- Note down the following readings:
 1. Unit load (MW)
 2. Turbine Speed
 3. Grid Frequency
 4. Trip Oil Pressure
 5. Aux. trip Oil Pressure



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Test Procedure: -

- Press the left valve knob to isolate the Aux. trip oil circuit to the over speed trip device. (DO NOT RELEASE, TILL END OF TEST)
- Gradually rotate the hand wheel of middle valve to move downwards and observe for test oil pressure raise.
- Observe and record the Test oil pressure at which the trip device is actuated. Raise pressure till both devices (10%&11%) are acted. withdraw hand wheel, after the tripping test.
- Ensure Both Over Speed Trip alarms come on the UCB screen.
- Press the right side valve knob to admit control oil to Aux. start up oil circuit of over speed trip device. This will reset the device to normal position.
- Release the left side valve knob gradually to normalize the Aux. trip oil circuit.

RECORDS:

Record Title	Record No.	Location	Responsibility	Retention Time
NTPL/OPRN/R-34		Operation Div.	TOS	3 Years

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