

S/T 3 ALARMS

SPEED:

THE SPEED HIGH ALARM WILL BE 3650 RPM FOR ALL THE TURBINE MODES EXCEPT STEP 9 (OVERSPEED TEST MODE) WHICH WILL BE 4050 RPM.

THERE WILL BE NO LOW ALARM DURING THE START-UP MODE. THE LOW ALARM IN STEPS 5, 6, 7, 8 AND 9 WILL BE 3550 RPM.

THE DIFFERENCE ALARM WILL BE ENABLED DURING ALL THE STEPS, EXCEPT 0 AND 1, AND WILL BE SET TO 10 RPM. THIS ALARM WILL BE ENABLED ONLY WHEN THE SPEED IS GREATER THAN 40 RPM. IT WILL WARN THE OPERATOR OF A POSSIBLE BAD SPEED PROBE.

THE SPEED/LOAD (S/L) SET POINT HIGH ALARM WILL BE DIVIDED INTO DIFFERENT CATEGORIES DEPENDING ON THE STEP IN WHICH THE TURBINE IS OPERATING. WHEN THE TURBINE IS IN THE START-UP MODE (STEPS 1 THROUGH 4), THE SYNCHRONIZATION PROCESS AND THE FREQUENCY CONTROL MODE (STEPS 5 AND 8, RESPECTIVELY) THE SP HIGH ALARM WILL BE 3610 RPM. WHEN THE TURBINE IS IN THE RUNNING MODE (STEPS 6 AND 7), THIS ALARM WILL BE SET AT 3780 RPM. AND FINALLY, WHEN THE TURBINE IS IN THE OVERSPEED MODE (STEP 9), THIS ALARM WILL BE SET TO 4000 RPM.

THERE WILL BE NO LOW SET POINT ALARM DURING THE START-UP MODE. THE LOW SP ALARM IN STEPS 5, 8 AND 9 WILL BE SET TO 3590 RPM. THE NORMAL RUNNING MODE SP LOW ALARM WILL BE SET TO 3605 RPM (STEPS 6 AND 7).

THE SET POINT/MEASURED VARIABLE (SP/MV) DEVIATION WILL BE ENABLED DURING ALL THE STEPS. THE PROGRAM WILL INCLUDE A 10-SECOND TIME DELAY.

THE SPEED/LOAD OUTPUT HIGH ALARM WILL BE SET TO 20% DURING STEPS 1 THROUGH 4 AND 100% DURING STEPS 5 THROUGH 9.

THE SPEED/LOAD OUTPUT LOW ALARM WILL BE SET TO 20% DURING STEPS 6 THROUGH 9. NO ALARM WILL BE REQUIRED DURING START-UP.

THE S/L SP HIGH/LOW, S/L SP/MV DEVIATION AND S/L OUTPUT HIGH/LOW ALARMS WILL NOT BE ENABLED UNLESS THE S/L CONTROLLER IS ON AUTOMATIC.

2. # PRESSURE:

THE HIGH PRESSURE ALARM WILL COME IN AT 255# AND IT WILL BE ENABLED DURING ALL THE STEPS.

THE LOW PRESSURE ALARM WILL BE ENABLED ONLY DURING STEPS 6, 7 AND 8 AND WILL COME IN AT 230#.

THE PRESSURE DIFFERENCE WILL BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 5#.

THE SP HIGH/LOW ALARMS WILL BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 260# AND 225#, RESPECTIVELY.

THE SP/MV DEVIATION WILL ALSO BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 5#. THIS ALARM WILL HAVE A 10-SECOND TIME DELAY.

THE OUTPUT HIGH/LOW ALARMS WILL ALSO BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 100% AND 30%, RESPECTIVELY.

THE SP HIGH/LOW, SP/MV DEVIATION AND OUTPUT HIGH/LOW ALARMS WILL BE ENABLED ONLY IF THE 235# CONTROLLER IS ON AUTOMATIC.

CONDENSER VACUUM:

THE CONDENSER VACUUM (CV) HIGH ALARM WILL BE SET AT 24" HG ABSOLUTE DURING STARTUP (THE GENERATOR BREAKER IS OPEN DURING THIS PERIOD). THIS SET POINT WILL CHANGE TO 8" HG ABS. WHEN THE GENERATOR BREAKER CLOSSES AND THE CV GOES BELOW 7" HG ABS.. THIS SET POINT WILL IN TURN CHANGE TO 4" HG ABS. WHEN THE CV DROPS BELOW 3.5" HG ABS. IF THE CV GOES BACK UP TO 7" HG ABS., THE HIGH HIGH ALARM WILL BE SET IN ADDITION TO THE HIGH ALARM.

THE CV LOW ALARM WILL BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 0.5" HG ABS.

THE DIFFERENCE ALARM WILL ALSO BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 0.5" HG ABS.

THE SP HIGH/LOW ALARMS WILL BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 22 AND 0.5" HG ABS., RESPECTIVELY.

THE SP/MV DEVIATION ALARM WILL BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 0.5" HG ABS. THIS ALARM WILL HAVE A 10-SECOND TIME DELAY.

THE CONTROLLER OUTPUT HIGH/LOW ALARMS ARE ALSO ENABLED DURING ALL THE STEPS AND ARE SET TO 100% AND 0%, RESPECTIVELY.

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THE SP HIGH/LOW, SP/MV DEVIATION AND OUTPUT HIGH/LOW ALARMS ARE ENABLED ONLY IF THE CONDENSER VACUUM CONTROLLER IS IN AUTOMATIC. ALARMS FOR THE HOGGER AND THE VACUUM BREAKER ARE NOT NEEDED.

SEAL STEAM:

THE SEAL STEAM (SS) HIGH ALARM WILL BE SET AT -1# DURING START-UP (STEPS 1 THROUGH 4) AND +7# WHILE THE TURBINE IS RUNNING (STEPS 5 THROUGH 9).

THE SS LOW ALARM WILL BE SET AT -4# DURING STEPS 1 THROUGH 4 AND +2.5# DURING STEPS 5 THROUGH 9.

THE SS DIFFERENCE ALARM WILL BE SET AT 0.5# AND WILL BE ENABLED DURING ALL THE STEPS.

THE SP HIGH/LOW ALARMS WILL BE SET AT +7.5 AND -7.5#, RESPECTIVELY AND WILL BE ENABLED DURING ALL THE STEPS.

THE SP/MV DEVIATION ALARM WILL BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 0.5#. THIS ALARM WILL HAVE A 10-SECOND TIME DELAY.

THE SS CONTROLLER OUTPUT HIGH/LOW WILL BE SET TO 50% AND 0%, RESPECTIVELY DURING STEPS 1 THROUGH 4, AND 100% AND 0% DURING STEPS 5 THROUGH 9.

AGAIN, THE SP HIGH/LOW, SP/MV DEVIATION AND THE OUTPUT HIGH/LOW ALARMS ARE ENABLED ONLY WHEN THE CONTROLLER IS ON AUTOMATIC.

DIFFERENTIAL EXPANSION:

THE HIGH ALARM WILL BE SET AT +110 MILLS. THE LOW ALARM WILL BE SET AT -110 MILLS. THE DIFFERENCE ALARM WILL BE SET TO 10 MILLS. THE RATE OF CHANGE ALARM WILL BE SET TO 5 MILLS FOR EVERY 30 SECONDS. ALL OF THE ABOVE ALARMS WILL BE ENABLED DURING ALL THE STEPS.

SHELL EXPANSION:

THE HIGH ALARM WILL BE SET TO 650 MILLS. THE LOW ALARM WILL BE SET TO 150 MILLS. THE RATE OF CHANGE ALARM WILL BE SET TO 10 MILLS EVERY 30 SECONDS. THE ABOVE ALARMS WILL BE ENABLED DURING ALL THE STEPS.

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DENSER HOOD TEMPERATURE:

THE HIGH ALARM WILL BE SET AT 300 DEG. F. AND WILL BE ACTIVE DURING ALL THE STEPS. THERE WILL BE 2 ALARMS AT +/- 10% DEVIATION FROM A GIVEN SET POINT (250 DEG. F.) DURING STEPS 1 THROUGH 5. THESE TWO ALARMS WILL BE ENABLED ONLY WHEN THE HOOD TEMPERATURE REACHES THE REGION 225 - 275 DEG. F.

V1 UPPER:

THE HIGH ALARM WILL BE 20% DURING START-UP AND 100% WHILE RUNNING. THE LOW ALARM WILL BE 10% WHILE RUNNING. THE DIFFERENCE ALARM WILL BE SET AT 5 AND WILL BE ENABLED IN ALL STEPS. THE DIFFERENCE ALARM WILL HAVE A 1-SECOND TIME DELAY.

V1 LOWER:

THE DIFFERENCE WILL BE SET TO 5 AND WILL BE ENABLED IN ALL STEPS. THIS ALARM WILL ALSO HAVE A 1-SECOND TIME DELAY. V2: --

THE HIGH ALARM WILL BE 20% DURING START-UP AND 100% WHILE RUNNING. THE LOW ALARM WILL BE 10% WHILE RUNNING. THE DIFFERENCE WILL BE SET TO 5 AND WILL BE ENABLED IN ALL STEPS. THE DIFFERENCE ALARM WILL HAVE A 1-SECOND TIME DELAY.

STEP ALARMS:

THE FOLLOWING ALARMS WILL OCCUR DURING START-UP BEFORE STEPS 2, 3, 4 AND 5: READY TO ROLL, SLOW ROLL PAUSE, ENERGIZE FIELD PAUSE AND READY TO SYNCHRONIZE, RESPECTIVELY.

BUSS #3 SYN BUSS BREAKER OPEN:

THIS ALARM WILL BE ENABLED AS SOON AS THE GENERATOR BREAKER CLOSSES (AFTER STEP 5).

#3 NEUTRAL BREAKER CLOSING FAILURE ALARM:

THIS ALARM WILL BE ENABLED IN STEP 4 WHEN THE TURBINE REACHES 3200 RPM.

FIELD FLASHING FAILURE ALARM:

THIS ALARM WILL BE ENABLED AS SOON AS #3 NEUTRAL BREAKER IS CLOSED IN STEP 4.

TURNING GEAR FAILURE ALARM:

THIS ALARM WILL BE ENABLED IN STEP 0 AND WILL COME IN IF THE SPEED GOES BELOW 1 RPM OR ABOVE 2 RPM.

TURNING GEAR MOTOR TRIP DUE TO LOW BEARING OIL PRESSURE:

THIS ALARM WILL BE ENABLED AS SOON THE TRISEN SENDS A DIGITAL OUTPUT TO START THE TURNING GEAR MOTOR. THE ALARM WILL COME IN IF THE BEARING OIL PRESSURE DROPS BELOW A SET POINT (8 PSIG).

TURNING GEAR MOTOR FAILED TO START:

THIS ALARM WILL BE ENABLED 5 SECONDS AFTER THE TRISEN SENDS A DIGITAL OUTPUT TO START THE TURNING GEAR MOTOR. IF SPEED IS NOT DETECTED THROUGH THE TURNING GEAR MOTOR SPEED PROBE, THE ALARM WILL COME IN.

LOSS OF A SPEED PROBE:

THERE WILL BE 5 ALARMS, ONE FOR EACH SPEED PROBE. THESE ALARMS WILL BE TRIGGERED AS SOON AS THE SELECTED SPEED GOES ABOVE 40 RPM. EACH ALARM WILL COME IN WHEN THE DIFFERENCE BETWEEN A SPEED PROBE AND THE SELECTED SPEED IS 5 RPM.

LOSS OF ALL TURBINE SPEED PROBES:

THIS ALARM WILL BE ENABLED AS SOON AS THE SELECTED SPEED GOES ABOVE 40 RPM.

CONTROLLER AUTO/MANUAL ALARMS:

AN ALARM WILL COME IN WHEN A CONTROLLER (SPEED/LOAD, 235# PRESSURE, SEAL STEAM, CONDENSER VACUUM AND CONDENSER HOOD TEMPERATURE) GOES FROM AUTO TO MANUAL OR VICE VERSA.

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ANT MASTER CHANGES WITH PERMISSIVES NOT GRANTED:

STEAM PRESSURE AND DEPRESSURE FAILURE:

THESE 2 ALARMS WILL BE ENABLED DURING STEP 1 ONLY IF THE WARM-UP IS DONE AUTOMATICALLY.

TRIP ALARMS:

THE FOLLOWING TRIP ALARMS WILL BE ENABLED DURING STEP 1 THROUGH STEP 9: ELECTRONIC OVERSPEED, STOP VALVE HYDRAULIC OIL PRESSURE, LOW BEARING OIL PRESSURE, CONDENSER HIGH PRESSURE, SPEED INCREASE DURING WARM-UP, FRONT STANDARD, VIBRATION, THRUST, STOP PUSHBUTTON, EMERGENCY TRIP, BEARING TEMPERATURE, PROTECTIVE RELAY.

HYDRAULIC OIL PRESSURE:

THE LOW HYDRAULIC OIL ALARM WILL BE ENABLED DURING ALL THE STEPS EXCEPT DURING STEPS 0 AND 1 (WARM-UP STEP). THE DIFFERENCE ALARM WILL BE ENABLED DURING ALL THE STEPS AND WILL BE SET TO 10#.

BEARING OIL DIFFERENCE ALARM:

THIS ALARM WILL BE ENABLED IN ALL STEPS AND WILL BE SET TO 3#.

TRIP COIL BAD:

THIS ALARM WILL BE ENABLED WHEN THE TRIP COIL MONITOR FAILS.

TRISEN TS3000 TROUBLE ALARM:

THIS ALARM WILL BE ENABLED WHEN A POWER SUPPLY, A TRISEN HARDWARE RACK OR A MAIN PROCESSORS GOES BAD.

FIRST STAGE PRESSURE ALARM DURING WARMUP:

THIS ALARM WILL BE ENABLED ONLY DURING THE WARMUP STEP. IT WILL COMPARE THE MEASURED FIRST STAGE PRESSURE TO THE SET POINT AND WILL ALARM WHEN THE MEASURED VALUE EXCEEDS THE SET POINT.

ST3 ALARM SETTINGS

SPEED / LOAD CONTROLLER:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
HIGH	STEPS 1-8	3650	3640	A/P
	STEP 9	4050	4040	A/P
LOW	STEPS 6-9	3550	3560	A/P
DIFFERENCE	STEPS 2-9	10	8	A/P
SP HIGH	STEPS 1-4	3610	3605	P
	STEPS 5,8	3610	3605	P
	STEPS 6,7	3780	3775	P
	STEP 9	4000	3995	P
SP LOW	STEPS 5,8	3590	3595	A/P
	STEPS 6-7	3605	3610	A/P
	STEPS 9	3590	3595	A/P
DEVIATION	STEPS 1-9	10	8	A/P
OUTPUT HIGH	STEPS 1-4	20	18	P
	STEPS 5-9	100	98	P
OUTPUT LOW	STEPS 6-9	20	22	P

235# EXT./ADM. CONTROLLER:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
H	STEPS 1-9	255	250	A/P
LOW	STEPS 6-8	230	233	A/P
DIFFERENCE	STEPS 1-9	5	3	A/P
SP HIGH	STEPS 1-9	260	255	P
SP LOW	STEPS 1-9	225	230	P
DEVIATION	STEPS 1-9	5	4	A/P
OUTPUT HIGH	STEPS 1-9	100	98	P
OUTPUT LOW	STEPS 1-9	30	32	P

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AL STEAM CONTROLLER:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
HIGH	STEPS 1-4	-1	-1.5	A/P
	STEPS 5-9	7	6.5	A/P
LOW	STEPS 1-4	-4	-3.5	A/P
	STEPS 5-9	2.5	2.6	A/P
DIFFERENCE	STEPS 1-9	0.5	0.4	A/P
SP HIGH	STEPS 1-9	7.5	7	P
SP LOW	STEPS 1-9	-7.5	-7	P
DEVIATION	STEPS 1-9	0.5	0.4	A/P
OUTPUT HIGH	STEPS 1-4	50	49	P
	STEPS 5-9	100	98	P
OUTPUT LOW	STEPS 1-9	0	1	P

CONDENSER VACUUM CONTROLLER:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
HIGH	STEPS 1-4	24	21	P
	STEPS 6-9	8	6	P
		4	3.5	P
LOW	STEPS 1-9	0.5	0.7	A/P
DIFFERENCE	STEPS 1-9	0.5	0.3	A/P
SP HIGH	STEPS 1-9	22	21.5	A/P
SP LOW	STEPS 1-9	0.5	0.7	P
DEVIATION	STEPS 1-9	0.5	0.4	A/P
OUTPUT HIGH	STEPS 1-9	100	98	P
OUTPUT LOW	STEPS 1-9	0	2	A/P

V1 UPPER VALVE ALARMS:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
HIGH	STEPS 1-5	20	18	P
	STEPS 6-9	100	98	P
LOW	STEPS 6-9	10	12	P
DIFFERENCE	STEPS 1-9	5	3	A/P

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LOWER VALVE ALARMS:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
DIFFERENCE	STEPS 1-9	5	3	A/P

V2 VALVE ALARMS:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
HIGH	STEPS 1-5	20	18	P
	STEPS 6-9	100	98	P
LOW	STEPS 6-9	10	12	P
DIFFERENCE	STEPS 1-9	5	3	A/P

DIFFERENTIAL EXPANSION ALARMS:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
HIGH	STEPS 1-9	110	108	P
LOW	STEPS 1-9	-110	-108	A/P
DIFFERENCE	STEPS 1-9	10	8	A/P
RATEOFCHANGE	STEPS 1-9	5	4.5	A/P

SHELL EXPANSION ALARMS:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
HIGH	STEPS 1-9	650	640	A/P
LOW	STEPS 1-9	150	140	A/P
RATEOFCHANGE	STEPS 1-9	10	9.5	A/P

CONDENSER HOOD TEMPERATURE ALARMS:

		<u>ALARM</u>	<u>RESET</u>	<u>ALARM/PRINT</u>
HIGH	STEPS 1-9	300	290	A/P
+10%DEVIATION	STEPS 1-5	275	250	A/P
-10%DEVIATION	STEPS 1-5	225	250	A/P

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