

NEOMETRIX

The Complete Engineering Solutions Company
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PERFORMANCE TEST RIG

FOR

MAIN ROTOR ACTUATOR

AND

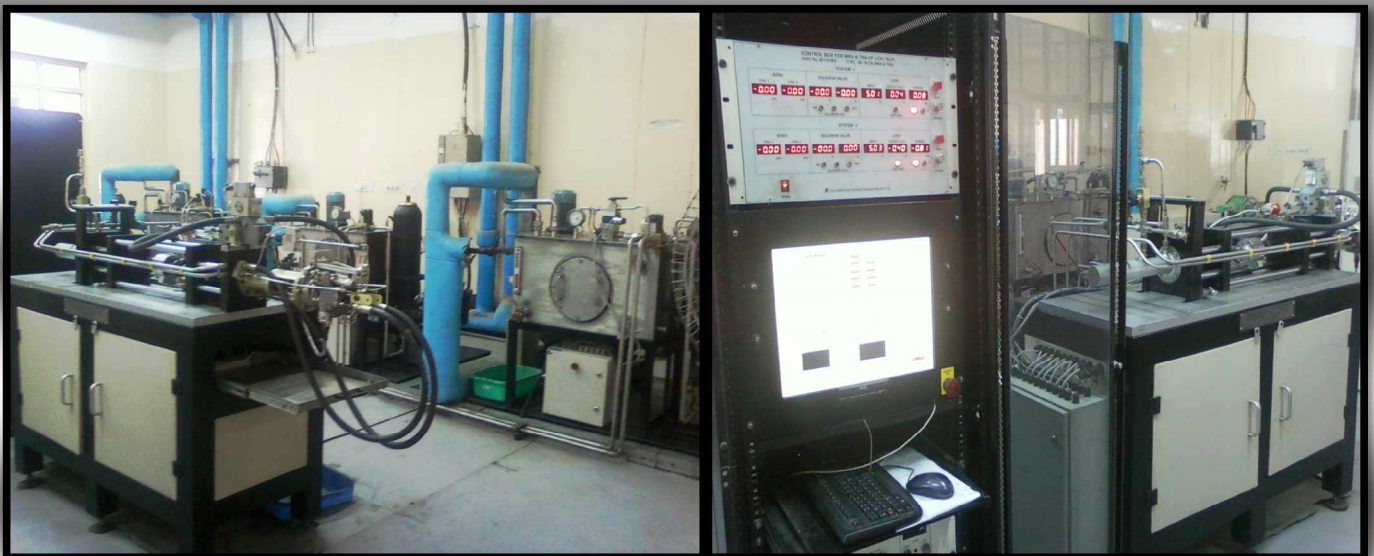
TAIL ROTOR ACTUATOR

OF

LCH



CATALOG



E - 148, SEC - 63, NOIDA (201301), UP
www.neometrix.in

PURPOSE

THE NEOMETRIX ENGINEERING SERIES NO. 001107000 RIG IS MEANT FOR TESTING, ADJUSTMENT AND CHECKING OF VARIOUS PERFORMANCE PARAMETERS OF MAIN ROTOR ACTUATORS (PITCH, ROLE & COLLECTIVE) AND TAIL ROTOR ACTUATOR OF LCH.

THIS RIG WILL PERFORM FOLLOWING FUNCTIONS AND TESTS ON THE ACTUATORS.

1. MECHANICAL TEST

PROOF PRESSURE TESTS

RAM STROKE

LOAD TEST

PILOT INPUT LOAD

STALL LOAD & SYNCHRONIZATION

DRIFT SPEED TEST

2. ELECTRICAL TESTS

LVDT CENTER SETTING

AUTO STABILIZER OPERATION

BY-PASS ANTI JAMMING OPERATION

LINEARITY/HYSTERESIS TEST

THRESHOLD VERIFICATION

3. EXTERNAL LEAKAGE TEST

4. INTERNAL LEAKAGE TEST

5. *NO LOAD SPEED TEST*
6. *LOAD VS. SPEED CHARACTERISTICS TEST / LOOP GAINS*
7. *FREQUENCY RESPONSE TEST*
8. *TRANSIENT RESPONSE TEST*
9. *DYNAMIC STIFFNESS AND CHATTER TEST*
10. *CYCLING TEST FOR MAIN AND CSAS ACTUATOR BY-PASS VALVE*
11. *CSAS ACTUATOR TESTS*

CSAS ACTUATOR OPERATING SPEED

CSAS ACTUATOR CENTERING SPEED CHECK

HYDRAULIC LEAKAGE OF CSAS UNIT

HYSTERESIS OF CSAS

NULL BIAS

NULL SHIFT (MECHANICAL AND ELECTRICAL NULL)





TECHNICAL SPECIFICATION

<i>S. NO.</i>	<i>NAME OF CHARACTERISTIC</i>	<i>VALUE OF CHARACTERISTIC</i>
	<i>SPECIFICATIONS OF MAIN RIG</i>	
<i>1.</i>	<i>WORKING FLUID</i>	<i>MIL - PRF - 5606</i>
<i>2.</i>	<i>RESERVOIR CAPACITY</i>	<i>NOT LESS THAN 300 LTRS</i>
<i>3.</i>	<i>CLEANLINESS OF WORKING FLUID</i>	<i>BETTER THAN OR EQUAL TO NAS</i>

		CLASS 4
4.	<i>FLOW OF PUMP AT PRESSURE 210 BAR. (HOWEVER MAX PRESSURE OF MAIN PUMP SHOULD BE 350 BAR AT LESSER FLOW.)</i>	<i>NOT LESS THAN 50 LTR / MIN</i>
5.	<i>RANGE OF ADJUSTMENT OF WORKING FLUID PRESSURE IN DELIVERY LINE.</i>	<i>UPTO 350 BAR</i>
6.	<i>STATIC PRESSURE THROUGH HAND PUMP</i>	<i>600 BAR</i>
7.	<i>NORMAL TEMPERATURE OF WORKING FLUID</i>	<i>30 ± 10 °C</i>
8.	<i>WHEN UNIT IS KEPT IN HOT & COLD CHAMBERS, DUE TO VARIATION OF TEMPERATURE OF UNIT FLUID TEMPERATURE MAY VARY FROM - 35 TO 133 DEG C FOR A SHORT PERIOD. DURING THIS, THE RIG MUST WITHSTAND THIS VARIATION OF OIL TEMPERATURE.</i>	
9.	<i>MAXIMUM VALUE OF MEASURED FORCE FOR OUTPUT LINK AT FIXED ROD OF AGGREGATE, N</i>	<i>30000</i>
10.	<i>RANGE OF MEASUREMENT OF STROKE</i>	<i>80</i>

	<i>LENGTH, IN MM</i>	
11.	<i>DC POWER SUPPLY (TO BE PROVIDED AS PART OF THE TEST RIG)</i>	
	<i>DC VOLTAGE</i>	<i>0 - 32 VOLTS</i>
	<i>DC CURRENT</i>	<i>5 AMPS</i>
	<i>RESPONSE TIME</i>	<i>0.1 SEC MAX</i>
12.	<i>CONTROL BOX</i>	<i>AS PER DETAIL PROVIDED AT S. NO. 3.2.3 OF TECHNICAL SPECIFICATION</i>



SPECIFICATIONS OF LOADING SYSTEM

1. WORKING FLUID	MIL - PRF - 5606
2. RESERVOIR CAPACITY	NOT LESS THAN 125 LITRS
3. CLEANLINESS OF WORKING FLUID IN HYDRAULIC SYSTEM OF RIG.	BETTER THAN OR EQUAL TO NAS CLASS 4
4. PARAMETERS OF LOADING CYLINDER	
EFFECTIVE AREA, CM (APPROX)	15
MOVEMENT OF ROD, (MM)	80
5. FLOW OF PUMP FOR LOADING JACK AT PRESSURE 210 BAR	NOT LESS THAN 20 LTR / MIN
6. RANGE OF ADJUSTMENT OF WORKING FLUID PRESSURE	UPTO 250 BAR
7. NORMAL TEMPERATURE OF WORKING FLUID	30 ± 10 °C

SPECIFICATION OF SERVO JACK FOR PILOT INPUT LEVER

1. *SERVO OPERATED HYDRAULIC JACK TO APPLY A LOAD UPTO 150 N WITH STROKE LENGTH OF 80 MM TO BE PROVIDED FOR PILOT INPUT LEVER, JACK WILL USE THE POWER SOURCE OF LOADING SYSTEM.*

LEAKAGE (AIR TIGHTNESS) IN HYDRAULIC SYSTEM:

NOT MORE THAN 1.4×10^{-4} CM³ / SEC (ACCUMULATION VISIBLE OF LIQUID IN THE FORM OF DROPS OR ENVELOPING FILM, WITHOUT DETACHMENT AND FALLING OF DROPS ON INSPECTED SURFACE IS NOT PERMITTED.)

SERVICE FACILITY:

ELECTRIC POWER SUPPLY:

PHASE: THREE PHASE, AC

VOLTAGE: 415 V \pm 10 %

FREQUENCY: 50 \pm 1 HZ

CHILLED WATER SUPPLY: CHILLED WATER WILL BE AVAILABLE AT TEMPERATURE OF 18 °C FOR SUPPLY.



ADDITIONAL INFORMATION :

- *TEST RIG MUST BE FULLY AUTOMATED TYPE, THERE MUST BE PROVISION IN CUSTOMIZED SOFTWARE TO PERFORM THE ENTIRE TEST THROUGH THE PXI BASED DATA ACQUISITION & CONTROL SYSTEM (P-IV/2.6GHZ OR BETTER) OR THROUGH MANUAL CONTROL AS DESIRED BY THE OPERATOR.*
- *DESIGN OF THE RIGS WILL BE SUCH THAT ITEMS ARE EASILY ACCESSIBLE FOR MAINTENANCE. CONTROL PANEL REAR*

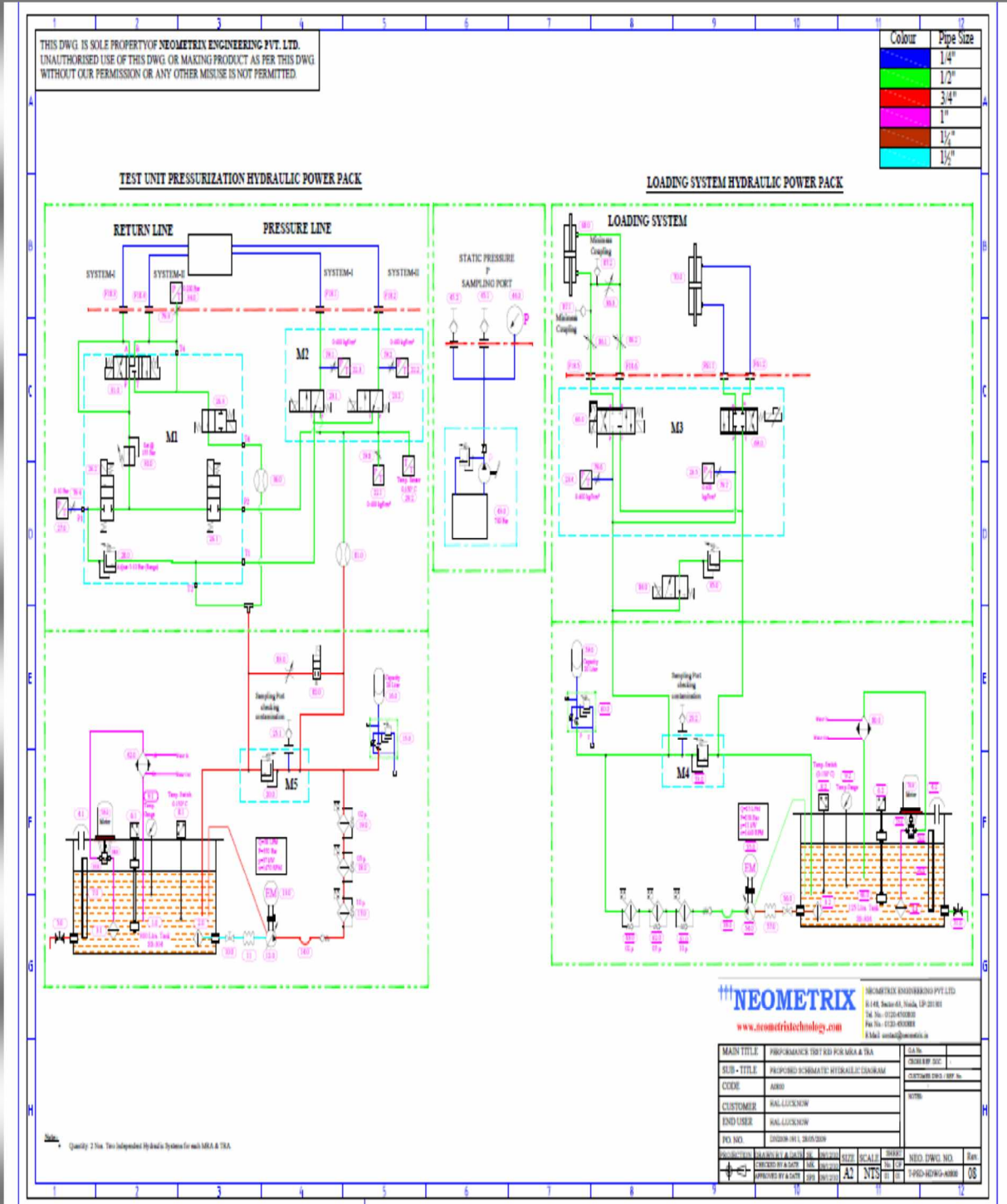
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*COVERS AND CABINET PANEL SHOULD BE BASED ON
DETACHABLE SYSTEM.*



CIRCUIT DIAGRAM



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OTHER NEOMETRIX FEATURED PRODUCTS

HEAT TRANSFER SYSTEMS TESTING

- BURST TEST FOR RADIATOR & CONDENSERS
- PRESSURE CYCLE TEST FOR RADIATOR & CONDENSERS
- VIBRATION TEST FOR RADIATOR & CONDENSERS
- COMBINED PRESSURE & VIBRATION TEST
- COMBINED ALL ABOVE

ENDURANCE TEST MACHINES

- DOOR TESTING MACHINE
- TYRE RIM TESTING MACHINE
- STEERING TESTING MACHINE
- GEAR HANDLE TESTING MACHINE
- RING AND GEAR TOOTH

DATA ACQUISITION
SYSTEM



ENGINE TESTING
MACHINE TEST
SYSTEM



COMBINED
PRESSURE AND
VIBRATION



CNG CIRCUIT LEAK
TESTER



MONITORING &
CONTROL SYSTEM

