

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

USER MANUAL



**UNIVERSAL HYDRAULIC CHARGING RIG
(A-1760)**

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
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CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

INDEX

<u>S.No</u>	<u>Content</u>	<u>Page No.</u>
1	Packing List	
2	Do's & Don'ts for the system	
3	Warnings	
4	System description	
5	Introduction of system	
6	Operating procedure	
7	Bill of materials	
8	List of attachments	
9	Maintenance	

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

1. Packing List

Packing Box will contain:

- 1- Universal Hydraulic charging Rig.
- 2- 5 mtrs. Hydraulic hose.
- 3- Allen key set.
- 4- Gauge calibration certificate
- 5- Warranty certificate

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
--------------------------------------------------	----------------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

2. Do's & Dont's for the system

2.1

Do:

- Read the user manual in detail before operating the system.
- Check the Oil Level before operation; it should be above the lowest marking.
- Before operating the hand pump please ensure that all the fittings are properly tightened.

2.2

Don't:

- Don't operate the hand pump with oil below lowest level.
- Don't operate the hand pump without connecting hose to aircraft.

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

3. Warnings:

- Always keep oil level in the tank above the lowest mark.
- Don't operate hand pump more than the pressure of 100kg/cm².
- Hydraulic oil having grade other than OM-15 should not be used.
- Don't operate the hand pump without connecting hose to the jet(Su-30 or Mig series).

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
--------------------------------------------------	----------------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

4. System description:

“**Universal hydraulic charging rig**” is used to replenish the hydraulic system in the fighter aircraft (Su-30 & Mig series) with the hydraulic oil. The system will supply the oil to the aircraft at working pressure of 25kg/cm² and flow rate will be 49cc/rev. The filtered oil through filter will go to the aircraft by the hydraulic hose.

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

5.Introduction:

The system consists of 25 ltrs. SS tank with the hydraulic hand pump mounted on the tank, Filler breather, Level indicator and hydraulic filter and hydraulic hose with two universal hydraulic adaptors.

5.1 Technical specifications:

- Working fluid: Hydraulic oil OM-15
- Working temperature: Ambient temperature
- Working pressure: 25kg/cm²
- Length of hydraulic hose: 5 mtrs. of hydraulic hose of 30mm OD
- Filter rating : 3 microns
- Storage tank : 25 ltrs.
- Storage tank material : Stainless steel
- pump : hydraulic hand pump with pressure range of
(0-100 kg/cm²).

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

5.2 Major Components:

The system consists of a 25 Ltrs. SS tank with hand operated hydraulic hand pump which will generate the pressure of 25kg/cm². The oil will be filtered by 3 micron hydraulic filter and go to the jet through hydraulic hose.

Accessories of system :

1. Filler Breather:

This is used to fill hydraulic oil in the tank which consists of 40 micron strainer which prevents foreign particles from mixing in the tank.

2. Level indicator:

This indicates the present hydraulic oil level inside tank .

3. Hydraulic hand pump:

This is used to generate the hydraulic oil pressure at desired pressure and flow manually.

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

4. Pressure gauge:

This is used to show the current pressure of the system manually.

5. Hydraulic oil filter:

3 micron oil filter is used to filter hydraulic oil before entering to the system.

6. Universal adapter:

These are the end connectors which will connect on the aircraft to replenish the hydraulic system through the hydraulic oil.

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

6.Operating procedure :

Step-1:

Firstly, make sure that all the fittings are properly tightened and oil level in the tank should be above the low level. Hose should be connected to the aircraft charging port.

Hand pump relief valve pressure is set by moving the knob of pressure relief valve in clockwise (Set pressure becomes high) or anticlockwise direction (Set pressure becomes Low).

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

Step-2:

As the hand pump is operated, the oil at desired pressure of 25 bar which can be seen on the pressure gauge starts to flow through the hose at a flow rate of 49cc/rev.

Step-3:

Once, the hydraulic system of the aircraft is replenished properly, stop to operate the hand pump and remove the hose from the aircraft charging point and plug it.

Step-4:

After using the system, hose should be plugged and the rolled back on the hanger.

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

7. Bill of Materials:

SO.NO	ITEM NAME	DESCRIPTIONS	MODEL NO.	QTY.
1	FILLER BREATHER	TANK FILLER- STRAINER BREATHER ASSEMBLY	A-1760-001	1
2	LEVEL INDICATOR	LEVEL GAUGE	A-1760-002	1
3	HAND PUMP	30 BAR, 49CC/STROKE	A-1760-003	1
4	PRESSURE GAUGE	RANGE-(0-120 KG/CM2), Dial Size 4", BOTTOM MOUNTING	A-1760-004	1
5	UNIVERSAL ADAPTOR	One for MiG Series, One for SU-30 ac	A-1760-005 FOR SU-30 A-1760-006 FOR MIG	2
6	HYDRAULIC FILTER	3 MICRONS	A-1760-007	1
7	TANK	SS-304, 25LTRS.	A-1760-008	1
8	TROLLEY	CORROSION RESITANT METAL ONLY	A-1760-009	1
9	TROLLEY WHEEL	DIA-125MM, POLYEURTHANE	A-1760-010	3
10	TANK DRAINAGE ADAPTOR	½" BSP	A-1760-011	1
11	CHARGING HOSE	30MM Hose ,5000MM LENGTH	A-1760-012	1

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
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CUSTOMER	INDIAN AIR FORCE-NASIK
EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

8. List of Attachment:

8.1 General circuit diagram:

NOTE:
ALL DIMENSIONS ARE IN MM.
(INITIAL DRAWING 24/01/2018 ID C-14-101)

ISOMETRIC VIEW

DESIGN DATA			
PART NO.	PART NAME	DESCRIPTION/MODEL	MAKE
A.	CHARGING TANK	35 LTR / 25 LTR	HYDRAULIC
B.	FILLER BREATHER	1/4" (10.16) BREATHER	HYDRAULIC
C.	HYDRAULIC TANK	5 MICRON	HYDRAULIC
D.	HAND PUMP	20 BAR, 40CC PPA	POULI HYDRAULIC
F.	PRESSURE GAUGE	RANGE: 0-20 (G/CM2) / 0-200 (BAR) (10 MP)	WIKER
I.	CHARGING HOSE	1/2" HOSE, 5000MM LENGTH	PARCELA
G.	UNIVERSAL ADAPTER	CHARGING HOSE, 1/2" DIA	AS PER STANDARD
H.	WHEEL WITH LOCK	Ø100-25MM	POULI HYDRAULIC
J.	WHEEL INFLATOR	1/4" GAUGE -0.2 / -0.40	HYDRAULIC
K.	HOSE	CONNECTING HOSE, 1/4" DIA	HYDRAULIC

TOP VIEW
Dimensions: 945, 300, 300

FRONT VIEW
Dimensions: 150°, 300, 405

SIDE VIEW
Dimensions: 300, 215, 480

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TECHNICAL DETAILS:

- HYDRAULIC OIL TO BE USE : OMS-15 OR EQUIVALENT .
- TWO DIFFERENT ADAPTER FOR HYDRAULIC OIL CHARGING : 01 FOR MIG SERIES & 01 FOR SU30 AIRCRAFT .
- VOLUME OF TANK : 32 LTRS (APPROX.)
- USABLE VOLUME : 25 LTRS
- THICKNESS OF TANK : 3 MM
- THICKNESS OF TANK TOP PLATE : 5 MM
- WEIGHT OF RIG : 30 KG (APPROX.)

NEOMETRIX

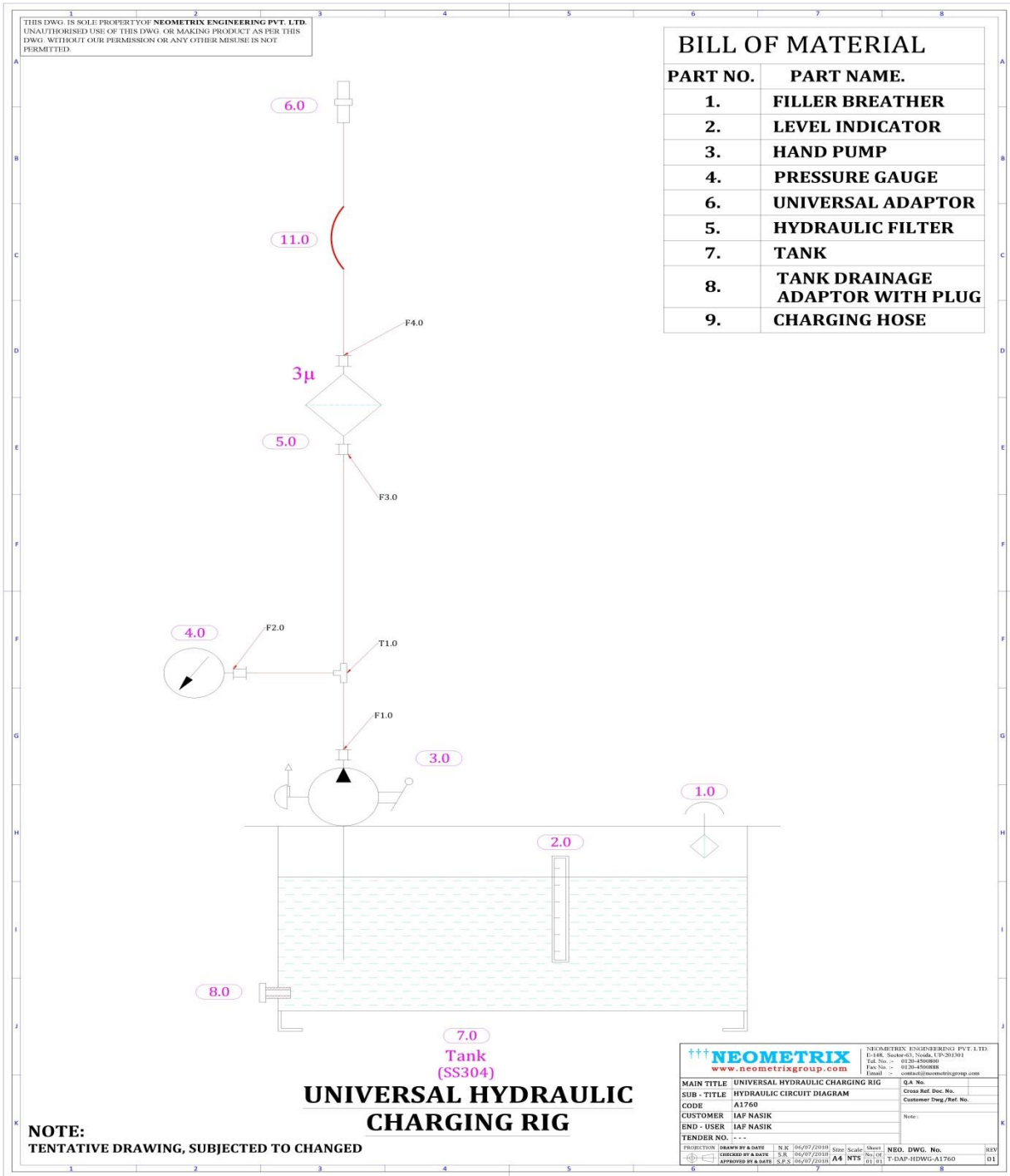
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DESIGN TITLE	UNIVERSAL HYDRAULIC CHARGING RIG	DATE	
SUB-TITLE	HYDRAULIC RIG	DESIGNER	
CODE	A1760	CHECKED	
CUSTOMER	IAF NASIK	APPROVED	
REV. USER	IAF NASIK	DATE	

1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

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EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

8.2 Hydraulic circuit diagram:



1 CIMD C/O 11 BRD, Indian Air Force-Nasik	Equipment Model no.-A1760	
-------------------------------------------	---------------------------	--

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EQUIPMENT NAME	UNIVERSAL HYDRAULIC CHARGING RIG

9. Maintenance:

1. Tank

- Clean the tank every month through tank adapter given downside the tank.

2. Filter

- Clean the filter and its element after every six months of using.

3. Hydraulic hose

- Hose should be checked visually it should not be cracked throughout its length.

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--------------------------------------------------	----------------------------------	--