

ANNEXED

SHEET

SUBJECT

"ALBUM NO - 252 "

TECHNICAL PAPERS FOR THE ARTICLE 84/0843711-03-7E -40007

TECHNICAL DESCRIPTION AND INSTRUCTIONS FOR
OPERATION

TRANSLATED	undone			Ordnance Factory Project Hyderabad.
AUTHENTICATED				
TYPE	Malabar			
EDITED	Padmanabha	<i>[Signature]</i>	2/12	APPROVED
	NAME	SIGN	DATE	<i>[Signature]</i>

I - 2090

LIST OF CONTENTS OF ALBUM NO 2 CONVENTIONAL INDEX 204/1343711-23

- 40007

Sl.No	No. of Drawings assemblies, articles,	Description of technical papers requirements	No. of drawings (Technical cal sheets)	No. of sheets in one copy
1.	Technical descrip- tion and instructions for operation	Contractor E&P 204 TKA No. 1, A1 D 1	5	8

Total
number of
sheets 8

Ordnance Factory
Project
Hyderabad.

HUNDRETHOUSAND

SHEET..... OF

2030

CONTACTOR FND 201 21

contd..4

Ordnance Factory
Project
Hyderabad.

NUMBER T.S. No. 201 D 1

SHEET 1 OF 13

Y = 2090

CONTACTOR TND 201 D 1

TECHNICAL DESCRIPTION AND INSTRUCTIONS FOR OPERATION

Revised Edition 1

contd. 5

Y - 2050

Present Technical Description and instructions for operation were developed, agreed and approved as per the condition of the article development in compliance with the technical papers issued ^{on} 1-5-71 ~~year~~ and are admitted for application from 9-8-71. They are issued instead of all the technical descriptions and instructions for operation, which have been printed earlier for contactor ERD 201D1.

contd. 6

I - 2090

1. PURPOSE AND TECHNICAL DATA

PURPOSE

Contactor TAD 201 D1 is an electromagnetic device, of valve type with twofold break circuit of contacts and is intended for remote switchings on and switchings-off of the power consuming units in air-craft power systems of direct current with voltage upto 30 volts.

External view of the contactor is shown in fig.1

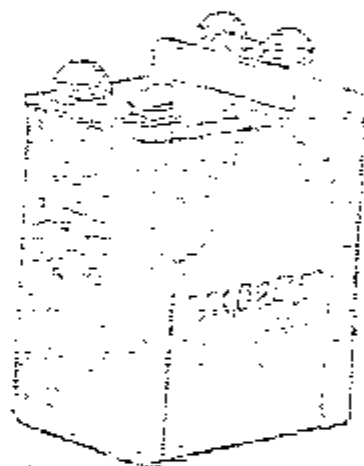


Fig 1 Contactor TAD 201 D1

Basic Technical Data

1. Nominal voltage of computed circuit of direct current - 27 V.
2. Nominal rate of current of computed circuit at direct current with $\tau \leq 0.001$ and at alternating current with $\omega \geq 0.5 \times 10^3$ rad/s.
3. Nominal voltage in the contactor control circuit - 27V
4. Current, consumed by the electromagnet in normal conditions at nominal voltage - not more than 0.24 A.
5. Wear resistance at switchings 5000 switchings.

I-2090

and switchings-off of nominal current when τ [of] the circuit.

$$0.001 \leq \cos \phi \leq 0.5;$$

15000 switchings on and switchings-off the nominal current in ohmic circuit.

6. Permissible frequency of pullups - not more than 5 times per minute.

7. Weight - not more than 0.13 kg.

Conditions for Application

1. Contactor is designed to operate in the following conditions:

a. of altitudes, temperatures of the surrounding medium and operational conditions which are specified in the table.

- Table

Item No	Condition of Operation	Altitude above the level of the sea (KM)	Temperature of the surrounding medium (°C)
1.	Continuous	from 0 to 25	from + 100 to -60
2.	Short term (3 minutes after every 2 hours)	from 0 to 35	from + 125 to 60
3.	Once in 2 hours at the end of service life	from 0 to 35	from + 125 to - 60
4.	Once in 5 minutes at the end of service life after the operation in land conditions at temperature from + 80 To - 60°C	from 0 to 35	from + 80 to + 200

b. of relative humidity of the surrounding medium at temperature upto + 40°C - upto 93%

contd..8

I - 2090

c. of voltage changes: -
of commutated circuit of direct current
- from 5 to 30 V
of commutated circuit of alternating current with frequency
360-440 Hz - from 20 to 220 V
with frequency 45 to 55 Hz (conditions) - from 20 to 240 V
of control circuit - from 24 to 30 V
of control circuit in the conditions of item No. 4 of table
from 22 to 30 volts.

Remark: A short-term (upto 2 seconds) decrease of the
voltage down 9.4 volts may be allowed in the control circuit
after the contactor has been switched-On.

2. ~~Decrease~~ of the voltage upto 32 V (for 5 minutes) may
be allowed in the control circuit after its operation under
the conditions as per item 1 of the table.

d. current values of commutated circuit - from 2.5 to
25 A.

2. Under the conditions of mechanical actions the
contactor should be:

a) resistant to vibration, should have vibration strength
and should withstand the following accelerations:

at a frequency from 10 to 30 Hz	from 0.4 to 3.4 in proportion to the frequency
at a frequency from 30 to 200	from 5 to 50
at a frequency from 200 to 600 Hz	5
at a frequency from 600 to 1000 Hz	12
at a frequency from 1000 to 2000 Hz	20

b) The contactor should withstand impact overload with

acceleration

acceleration 20g in a range from 40 to 100 impacts per minute without any damage;

- c. Contactor should withstand onefold impact without mechanical damage at an acceleration 50 g;
- d. Spontaneous contacts switchings on and switchings off at linear accelerations upto 25 g are not allowed, in this case switching on voltage in cold condition should not be increased more than by 2.5 volts and switching-off voltage should not be increased more than by 1.5 volts.

3. In the process of operation the contactor should withstand the following effects:

- a. Overload by current of 50 A for 2 minutes no more than 20 after every 5 hours of operation;
- b. 5 switchings on and 3 switchings-off at duration of the current flow before the break not more than 1 second of direct current - upto 100 A
of alternating current - upto 125 A

II. Design and principle of action

Contactor TAD 201 A1 is a contact device which is brought into motion by the electromagnet of valve type. The contact device of contactor has one pair of normally open contacts and is considered to be a single circuit with a double break at the contacts.

Lower contacts are arranged on the V-shaped contact spring 3 (Fig. 5) which together with the stop 6 is riveted to the plastic connector 7, which is riveted on the connector 9.

Coil of the electromagnet consists of winding coiled around the core 14 which is fixed in the frame 13.

The winding of the electromagnet 17 is connected to the control circuit across the arms 15 having contact screws arranged on the panel of the contactor.

I - 2090

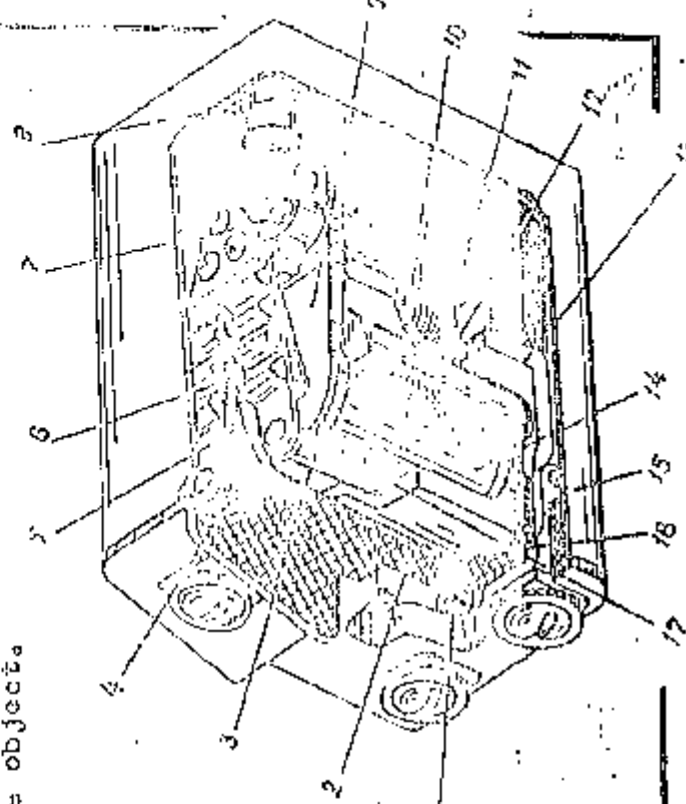
Core 14 with winding, coiled around it is fixed in a frame 13, which is attached to the plastic panel 2 by three screws 1. Two power contact arms 4 with contacts, soldered on them and 2 arms 16 for feeding the coil of contactor - are moulded in the panel 2.

A - shaped contact spring 5, in on which the power contacts together with stop 6, are fixed is attached to the plastic connector, which is mounted on armature 9.

Stop 6 serves to cause preliminary flexure of contact spring 5. Value of the contact and magnetic clearances is adjusted by bending of the stop 6. Besides the contact clearance is adjusted by movement of the electromagnet with respect to panel 2.

Contact pressure is adjusted with the help of stop 6 and effort of return spring 10 is adjusted with the help of adjusting screw 12 and bush 11.

Magnetic and contact systems are covered by a cap 15 having 2 expanded blind fixing bushes 8 at the bottom which fasten the contact to the objects.



E - 2090

Fig. 3 Contactor arrangement

1. Screw
2. Panel
3. Stop
4. contact arm
5. contact spring
6. stop
7. connector
8. Buffer bush
9. armature
10. Adjusting return spring
11. adjusting bush
12. adjusting screw
13. frame
14. core
15. cap
16. arm of control winding
17. winding

IV. Mounting of contactor on the object.

1. Place of mounting of the contactor on the object should meet the following requirements:
 - a. Vibration and impact over and load of place of fixing the contactors fixing, should not exceed the values, specified in section I.
 - b. Contactor should be protected from penetration of water, kerosene, oil, acid, dust, dirt and other flammable into it.
 - c. If the contactor is placed near the heated elements, temperature of immediate contactor windings should not exceed

contd..12

I - 2090

+ 200°C

1. Top periodic external examinations check-up for finding exactness and reliability of contact of external connections, the access to the contactor should be provided.

2. Before mounting the contactor on the object the items should be checked.

a. Absence of mechanical damages, due to the careless transportation and un packing - by means of external examination.

b. In cold condition - insulation resistance which should be minimum 50 megohms.

c. When contactor in cold condition for switching on and switching-off at a voltage on terminal screws of control circuit of about 27 ± 3 volts.

3. Contactor should be mounted on flat surface of fixing by ribs, which are present at the bottom of the cap and should be fixed by screws through the blind taper bushes, expanded in the same place.

The part of the screw which goes into the thread bushing should not exceed 5.5. mm. The fixing screws should be carefully locked.

Operating position shall be arbitrary.

4. While connecting the wires of power-circuit and control circuit to corresponding terminals it is necessary that the reliable electric contact should be ensured by the cleanliness of surfaces and tightening of contact screws. In this case the spring washers should be completely pressed.

Note: If it is necessary to use the shielding protection,

I - 2090

The contactors should be mounted in a casing made of steel.

Connection of the contactors to the net work should be carried out with the help of terminal lugs 6091c 54-8.

One should connect the wires in such a way that the panel and the other parts of the contactor would not get deformed.

Overall and mounting dimensions of the contactor are shown in fig 4.

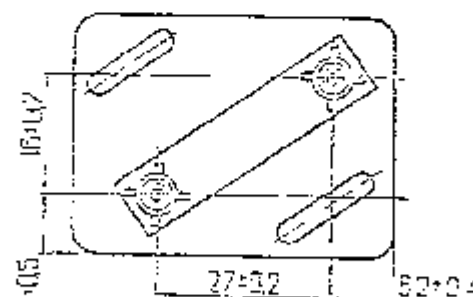
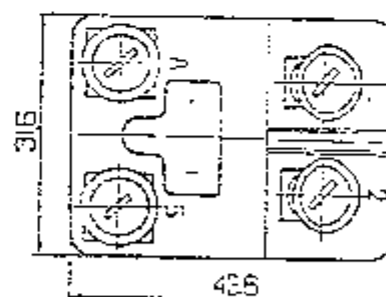
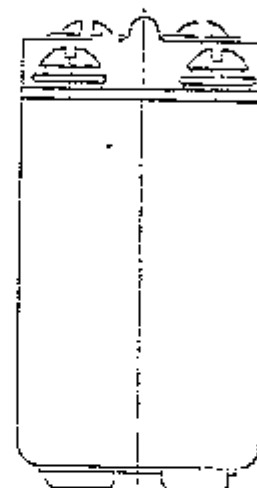
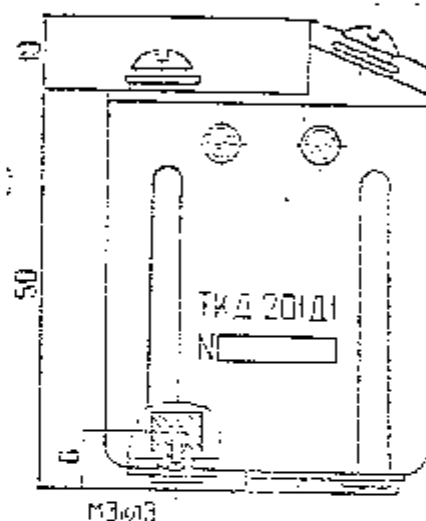


fig. 4

1. N 3kn 3
2. View K

Fig. Overall and mounting dimensions.

V. Guarantee.

Manufacturer guarantees the reliable operation of the contactor THD 201 D 1 in compliance with section "Guarantee" of the certificate.

contd..13

I - 2090

VI. INSTRUCTIONS FOR OPERATION

In the process of operation, while conducting the scheduled maintenance, the contactor on the object, should be cleaned, in order to remove the dirt and also the good condition of the wiring should be checked.

Short term loads by two fold current of the contacts of the contactor are allowed not after than after 5 hours of operation.

Contactor is delivered in adjusted condition. Its dismantling and adjustment are not allowed in the process of operation.

In case of failure, the contactor is irreparable and should be replaced by new one.

VII. INSTRUCTIONS FOR ALLOCATION PACKING,

STORAGE AND TRANSPORTATION.

At the time of transportation, storage in the stores of the customer the contactors are not be subjected to preservation. Contactors are packed in boxes as then in wooden cases and in such condition are directed to the consumer.

The packed contactors may be transported by any type of transport without any limit of speed and distance. It is forbidden to store the wooden cases with the contactors in the open air.

Opening of the wooden cases is allowed only in the closed storerooms covered with sweat parts of the contactors should be immediately rubbed with a clean dry cotton cloth and air dried.

I - 2090

Contactor should be stored removed from wooden cases on wooden racks in a clean dry ^{ventilated} premises. Contactors are allowed to store in cardboard boxes.

Wapour vapour and gases which are able to initiate corrosion should not enter inside the rooms, where the contactors are stored.

It is forbidden to store chemical reagents and substances that evaporate easily together with the contactors.

Content:-

1. Purpose and technical data 3
2. Design and principle of action 6
3. Design of assemblies and parts of contactor 6.
- iv. Mounting of contactor on the object.
- v. Guarantee 9.
- vi. Instructions for operation - 10
- vii. Instructions for preservation, packing, storage, and transportation.