

MFG'G BARBISAN  
RIDE: GHOST DARK RIDE

OPERATION

AND

MAINTENANCE HAND BOOK

GHOST TRAIN "DEVIL'S JOY RIDE "

MOD. 085 - C - 1SR

## I N D E X

- 1) Identification of the attraction.
- 2) Inspection report and technical data.
- 3) Wiring diagram + report and technical advises for the car feeder starting.
- 5) Electric power connection and vehicle levelling.
- 6) Erection of upper deck walls, platforms and side walls, upper deck figures.
- 7) Assembl of back floor supports and back roof raising.
- 8) Back roof raising, back floor opening, back wall roof, roof supports and side covering canvas.
- 9) Erection of lower side walls.
- 10) Setting up station floor plate, fences, spiral rise, and linking plates.
- 11) Setting up of lower deck double front, upper deck cantilever and sign.
- 12) Setting up of indoor slope plates and indoor cantilever.
- 13) Setting up of outer tunnel and waterfall.
- 14) Rail assembly, pneumatic door and figures.
- 15) Main switchboard and handy switchboard.
- 16) Checking before setting ride at work.
- 17) Pneumatic system.
- 18) Oleodynamic system.
- 19) Maintenance.
- 20) Spare parts.

## I N T R O D U C T I O N

- Read all instructions carefully before setting ride at work in order to avoid any inconvenience and/or irreparable damages.
- Effect checking and maintenance operations when due.
- The observance of the rules help to maintain efficiency of the attraction.
- When asking for assistance of spare parts, indicate type and code of the part, or at least a rough description of same.
- Descriptions, pictures and technical data included in this booklet are not binding.
- Officine Barbisan take the liberty to apply changes and improvements to the project of the attraction previously manufactured.
- The official text is issued in italian language translation have been provided to facilitate customer's understanding.

THE MANUFACTURER, THEREFORE, DOES NOT ASSUME ANY RESPONSABILITY FOR ANY INACCURACY.

IDENTIFICATION OF THE ATTRACTION

IDENTIFICATION TAG STAMPED ON THE VEHICLE RIGHT SIDE FRAME (Picture 1).

|                          |           |
|--------------------------|-----------|
| <b>ZORZI SPA</b>         |           |
| <b>ZAX28514019000087</b> |           |
|                          | 28 000 kg |
| 1-                       | 10 300 kg |
| 2-                       | 10 300 kg |
| 3-                       | — kg      |
|                          | 9 000 kg  |
| Tipo: 28 5 140 15        |           |

☆ZAX28514019000087☆

TECHNICAL DATA TAG LOCATED BESIDE ABOVE MENTIONED IDENTIFICATION TAG (Picture 2).

## OFFICINE BARBISAN s.n.c.

MODEL

GHOST TRAIN

ATTRACTION CODE

028

WEIGHT

55000 POUNDS K6 25000

LENGTH

82 FT MT 25

WIDTH

29 FT MT 9

HEIGHT

29 FT MT 9

YEAR OF CONSTRUCTION

1989

S. T. I.  
Studio Tecnico Industriale  
per ind. BUSO GIUSEPPE  
P.zza A.Moro, 2 - Tel. 0422/919383  
LANCENIGO (TV)

N. 016/STI - 89 DD. JULY 3rd, 1989

INSPECTION REPORT (Not binding translation of)

Effected on the portable equipment for carnival purposes named GHOST TRAIN "DEVIL'S JOY RIDE", manufactured by Officine Barbisan snc, Lovadina di Spresiano (TV) Italy. Upon request of Officine Barbisan snc, Lovadina di Spresiano (TV) Italy, the undersigned Giuseppe Buso, Industrial expert, inscribed in the board of industrial experts of the districts of Venezia and Treviso, as well as inscribed in the board of Industrial experts and consultants at the court of Treviso, has proceeded, in the presence of Mr. Mauro Barbisan for officine barbisan snc, to the following inspections of the aforementioned equipment.

INTRODUCTION

The part 1 of this report the inspection of the travelling vehicle. Part 2 regards the inspection on the safety devices of the equipment, once it is set at work.

PART 1

1) GENERAL FEATURES.

1.1 - IDENTIFICATION OF THE EQUIPMENT.

The equipment, subject of this report, consists of a 2-axle semitrailer - Mod. ZORZI 28S140/19 +U.E., marked with code ZAX28S14019000087 stamped on the right side wall in the front of the vehicle. When travelling, the vehicle appears as a closed structure, while it forms a GHOST TRAIN "DEVIL'S JOY RIDE" designed structure when set-up in the midway.

1.2 - DIMENSIONS OF THE SEMITRAILER.

The dimensions of the vehicle are the following:

- Overall lenght mt. 14,75 ( abotu Ft. 48 )
- Distance between virtuale axle and 1st axle mt. 8,64 ( about Ft. 3 )
- Distance between 2 consecutive axles mt. 1,36 ( about Ft.4,5 )
- Rear overhang mt. 3,35 ( about Ft. 11 )
- Max. width mt. 2,50 ( about Ft.8,2 )
- Max.height mt. 4,00 ( about Ft. 13 )

### 1.3 - SEMITRAILER BODY

Truck with moveable walls and raising panels with rail-track for GHOST TRAIN.

### 1.4 - DIMENSIONS OF THE EQUIPMENT, INCLUDING SEMITRAILER, WHEN SET AT WORK.

The dimensions of the equipment when set at work are the following:

- Overall lenght mt. 25,00 (about Ft. 82)
- Overall width mt. 9,00 (about Ft. 30)
- Overall height mt. 9,00 (about Ft. 30)

## PART 2

### 2.0 - GENERAL DESCRIPTION OF THE ATTRACTION.

The equipment consists of an approx 330 Ft. long track, on rails, part outdoor and part indoor, with several height and level variations. Cars are moved by electric engines feeded in direct current, changeable from 13 thru 50 Volts and 0,6 Kw power. The engine changeable tension is provided by a feeder (static), 20 KWA power, with suitable 300A diodes, located in positions not accessible to people and insulated. The whole is protected by magnetotermici switch located at the origin of the feeding sstem. The amusement is provided by the lighting of coloured bulbs, by opening and shutting doors, by sounds and horror figures.

The track consists of various parts:

the departure station, the spiral rise to lead car at the height of 3,30 mt. (Ft.11), track with turns, and counterturns, slopes, and arrival station. The cars are carneed and can carry 2 people each. They are provided with protection bar, manually locked at the departure and automatically released at the arrival.

The rail is in tubular stainless steel 42,4 millimeters diameter and 3 millimeters thickness, supported by tubular portals of different thickness.

### 3.0 - GENERAL DESCRIPTION OF SAFETY DEVICES.

The rise is effected by the cars by means of their own electric engines. In case of electric power cutoff, cars cannot go back during the rise since engines are provided with antireturn device.

During the slopes, car speed is maintained constant by mechanical brake. Cars are provided with a bar which keeps people secured to the seat and backrest during the ride: this bar is closed manually at the departure and released automaticall at the arrival. This bar cannot be released by the traveller during the ride. It only can be released by service staff, if need be.

The operator can make use of a switchboard, located in the ticket counter, enabling him to stop the attraction at any moment. All structures are firmly lockated with pins, braces, bolts and safety washers.

### 4.0 - INSPECTION OF OLEODYNAMIC AND PNEUMATIC SYSTEMS.

#### 4.1 Oleodynamic system

The oleodynamic system cylinders for the raising of walls and of the entire equipment, are manually controlled by means of handle distributors. The system is protected by safety valves which secure the stability of moving parts in case of breakdown or oil pressure drop. The lifting of side roofs is effected by oleodynamic cylindres, protected by safety valves, as above mentioned. The stability of the main roof, once set up, is secured by locking steels pins. Thew side roofs are supported by steel columns.

#### 4.2 - Pneumatic system.

The pneumatic system consistes of a compressor Mod.SHAMAL K/30, 6,3 HP and air tank Mod. SICC.ESONERI ISPESE 187998-17296/88 ITEM 112 L 300, max.pressure 12 bars.The equipments controlled by the pneumatic system are: doors, blowers, and some horror figures.

The different movements are made possible and protected by solenoid valves.

#### 4.3 - Access.

The access of people to the attraction is free, by walking on antislippery aluminium plates.

Walkway is protected by metal fences and handrails.

#### 4.4 - Additional protections.

Along the indoor track, there are canvas made of fire retardant fabric Ref.PRECONTRANT 552/2 as per certificate # 1122/1/2/3/4 dd. dec.6th, 1988 (photocopy of original cretificat in enclosed).

The attraction is moreover provided with 2 emergency exits, with outwards antipanic opening device. These emergency exits are indicated by the sign " EXIT ".

## 5.0 SPECIAL INSTRUCTIONS.

Before allowing admittance to people, the attraction should be provided with at least 4x10 - LBS- extinguishers, to be placed in easily accessible areas and clearly visible. The attraction operator will have to take care of their installation.

The equipment is and must be provided with stairway from the emergency exits down to the ground, this allowing people a safe way out. A plate prohibiting smoking and lighting of fires within the attraction area and nearby, should be placed near the ticket counter and entry.

## 6.0 CONCLUSIONS.

After accomplishment of the aforementioned inspections, the attraction is stated to have the proper service requirements to be allowed to public operation. With this report, the undersigned industrial expert, Giuseppe Buso, does not assume any responsibility for materials, contructions, dimensions, accessoires other than the ones indicated in this report and its enclosures. This report will be effective on the condition that :1) periodic overhauls aimed at maintaining the efficiency of the safety devices are effected; 2) The workshop effecting the said overhauls, will have to stamp and sign the following page, indicating dates of each overhaul operation; 3) The foreman of the equipment will have take care of checking the integrity of the electric system components as well as the efficiency of the safety devices at every setting at work of the mobile electric parts; 4) no modification is to be effected to the equipment today inspected, unless authorized with written notice by Officine Barbisan snc. 5) Any authorized modificaton will have to be indicated in the present report as well provided with liability statement by the workshop effecting the working. Any modification will have to be inspected by competent engineer, qualified for practicing of the profession in Italy and discribed in the profession board in Italy.

THIS REPORT AND ITS ENCLOSURES CAN BE REPRODUCED ONLY IN THEIR INTEGRAL VERSION.

## ADVISES AND RESTRICTIONS TO PUBLIC.

No Smoking

Once in the car: Do not stand up - do not lean up - do not get off car.

the manufacturer

The Engineer



### **... SPECIFICATION AND TECHNICAL DATA**

|                   |                             |
|-------------------|-----------------------------|
| Attraction        | : GHOST TRAIN               |
| Model #           | : 085 - C - 1SR             |
| Dimensions        | : m.25x9x9 (Ft.82x29x29)    |
| Weight            | : Kg.25.000 (pounds 55.000) |
| Track lenght      | : m. 110 (Ft.361)           |
| Cars              | : 10 cars - 2 seats each    |
| Capacity per hour | : 800 people                |
| Electric power    | : Kw.20                     |
| Set-up time       | : 8 hours/2 mens            |



# ZORZI

Officine ZORZI S.p.A.

dal 1918, i veicoli che si distinguono

Capitale Sociale L. 1.300.000.000 int. vers.

31100 TREVISO - Via Seitz 4 - C.P. 148 - ☎ (0422) 57237 - 5 linee r.a. - Telefax (0422) 547927 - Telex n. 410630 ZORZI I  
Reg. Soc. Trib. TV 14903 - C.C.I.A.A. Treviso 40559 - POS. EXPORT 880216 - P. IVA 01239580267 - C. F. 00186050274

Treviso, li \_\_\_\_\_

Ns. rif. \_\_\_\_\_

OGGETTO \_\_\_\_\_

## SEMITRAILER - TECHNICAL DESCRIPTION

Brand: ZORZI

Type: 28 S 140/19

Kind: SEMITRAILER

Total weight: 28 tons

Name and adress of the manufacturer: Officine ZORZI S.p.A. - Via L. Seitz 4  
TREVISO - ITALIA

### I - GENERAL FEATURES OF THE VEHICLE

N° of the axles: 2

N° of the wheels: 4

Axles type: R.O.R. TM/T 22510 BMX

Tyres size: 265/70 R 19,5

The semitrailer is built with a carrying structure with a plate on the front part in which is fitted the king pin; on the rear part there are the suspensions.

The carrying structure is made as it follows:

A frame built-up with two longitudinal members made in pressed steel profile, or in bented steel plate, or in steel structure electro welded.

The profile have "I" section.

The two longitudinal members are connected with cross members build-up in the same way as above.

The carrying structure is assembled with electrowelding.

**II - DIMENSIONS AND WEIGHTS**

|   |          |
|---|----------|
| Wheelbase (distance between king pin and ax of tridem): ..... | 9,320 m  |
| Distance between two axles cosecutive: .....                  | 1,360 m  |
| Tread: .....  | 1,880 m  |
| Lenght of the frame (without body): .....                     | 14,000 m |
| Width of the frame (without body): .....                      | 2,500 m  |
| Front overhang (without body): .....                          | 1,000 m  |
| Rear overhang (without body): .....                           | 3,000 m  |
| Over all lenght (with body): .....                            | 15,000 m |
| Over all width (with body): .....                             | 2,500 m  |
| Front overhang (with body): .....                             | 1,500 m  |
| Rear overhang (with body): .....                              | 3,500 m  |
| Height from ground (min.): .....                              | 0,160 m  |
| Tara weight: .....  | 4100     |
| Dead weight on the king pin: .....                            | 1100     |
| Dead weight on the axles: .....                               | 3000     |
| Total weight: .....   | 28000    |
| Total weight on the king pin: .....                           | 9000     |
| Total weight on the axles: .....                              | 19000    |

**III - SUSPENSION**

The suspension system is made with parabolic springs.

**IV - STEERAGE**

The steerage is guaranted by the king pin.

**V - BRAKING**

Braking system at compressed air, direct and automatic; In case of brakedows of coupling is assured the braking by an emmergency relais valve. Each wheel has a drum and the brake is able to work both in front and in rear running.

When the driver sets on the brake pedal of the tractor will work both the brakes of the tractor and the brakes of the semitrailer.

The brake circuit fulfils at the ECC regulation 71/320 - 79/489 - 75/529.

### MAIN DEVICES

The brake device is the type drum and expansion shoe with a "S" came set-up by a lever.

The control of the brake system is on all the axles. For each axle there is two cylinders that operate against the levers of the brake camshaft.

Utilizing pressure: 7,5 bar

Air bottle capacity: 75 lt.

Air main made in plastic tubes with diameter mm 8 or mm 12.

### BRAKES FEATURES

Drum made in special steel nickel-chrome cast iron, fixed at the hub of the wheel with two brake-shoes expandible with a came.

### GENERAL FEATURES

Model of brake: R.O.R. BMX

Diameter of the drum: 350 mm

Width of the brake shoes: 200 mm

Length of the levers: AV and AR 150 mm

Diameter of the cylinder: 13,46 (VASE 24")

Brake: verbal N°: RDW 19140434

Brake capacity: 13 t

Tyres set up: 265/70 R 19,5

Park brake, length of the lever: 200 mm

On the brake control circuit is fitted a braking calibrator that automatically increase or decrease the braking pressure as a function of the weight on the axles.

### PARKING BRAKE

It made by a screw handwheel that transmits, through a steel rope, the stress to the levers of the brake camshaft.

### AUTOMATING BRAKING IN CASE OF BROKEDOWN OF COUPLING

It is assured by the air distributor valve that let operate a relè emergency valve.

**ZORZI**

Segui lettera del .....

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- 4 -

**VI - BODY**

The semitrailer (model: 28 S 140/19) has left our factory with the following body:

only frame

In case the vehicle would be fitted with a different body, in the future, the manufacturer of the body will have to submit a certificate in three copies in which he declare that the frame has not been modified and that it is conforme at the type described.

**VII - LIGHTS AND SIGNALS**

All the devices fulfil at the regulations in force.

**VIII - SUNDRIES**

All our vehicles are fitted with:

- N° 1 rear bumper that fulfils at ECC regulation 79/490 and 81/333.
- N° 1 plate of the manufacturer
- N° 1 plate of the calibrator.

The numeration of the model serie starts with the n° : 0087

CONFORMITY CERTIFICATE

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Mr. Franco Zorzi, Chairman of the OFFICINE ZORZI S.P.A. - 31100 TREVISO - Italy - manufacturer; hereby certify:

A) That the vehicle:

- 1 - Kind: Semitrailer
- 2 - Brand: ZORZI
- 3 - TYPE: 28 S 140/19 - Version: frame
- 4 - Chassis Number: ZAX28S14019000087
- 5 - Body type: frame
- 6 - Dimensions: .Width : 2500 mm  
.Length : 14000 mm  
.Surface: 35 m<sup>2</sup>
- 7 - Total weight: 28000 kg
- 8 - Tara weight : 4100 kg
- 9 - Pay load admitted: 23900 kg

Is fully comply with the description as above.

- B) That this vehicle has left our factory on date 3/03/89 to be delivered to:  
ITALIA TRAILERS S.R.L. - Via Postumia, 29 - Ponzano Veneto - TREVISO

Trevise, date:



CERTIFICATE  
OF WORKMANLIKE PERFORMANCE OF THE ELECTRIC SYSTEM  
(NOT BINDING TRANSLATION OF)

I N S P E C T I O N

The undersigned ANGELO ZANATTA, born in Villorba (TV) on March 17th, 1951, living in Villorba, Via IV Novembre 1, fiscal code ZNT NGL 51C17 M048G; electrotechnical expert, inscribed on the bulletin board of industrial experts of the districts Venezia and Treviso with # 1306

C E R T I F I E S

That the electric system of the attraction named:

"GHOST TRAIN"

DEVIL'S JOY RIDE

MOD. # 085-C-18R

SEMITRAILER FRAME CODE # ZAX28S14019000087-02B

used as TRAVELLING AMUSEMENT ATTRACTION

Manufactured by : OFFICINE BARBISAN s.n.c.  
Via Fabbri - Zona Industriale  
LOVADINA di Spresiano (TV) - ITALY

Has been inspected in order to verify its safety (on fully set-up attraction) and result has turned out to be

POSITIVE

With particular emphasis on following tests:

- 1) Sight test - Selection and use of components,
  - setting of protection devices,
  - identification of conductors,
  - suitability of connections,
  - protection against direct contacts,
  - Identification of the switchboard containing the main switch;
  - location of emergency lights;
- 2) Continuity of the protection conductor;
- 3) Insulation resistance;
- 4) Value of rail feeding tension.

- NOTE:**
- a) - Fire retardant cables and conductors have been installed;
  - b) - an automatic fire detector system consisting of light-sensitive smoke detectors MOD. "RAPID SMOKE" has been installed.
  - c) - With batteries being down, emergency light autonomy is reached approx. 48 hours after charging start.
  - d) - It is suggested to feed the attraction by means of cable having a minimum section of 35 mmq.  
(mmq.: square millimeters. 1 mmq.: 0.04 Sq.inches)  
or/and in any case having a section basically computed on the length of same cable, in order not to exceed a 2% tension drop of the feeder line;  
it is moreover advisable to install an automatic or fuse switch to protect the feeder line.
  - e) - When being set at work, the attraction must be connected to an efficient grounding system, by means of the proper terminals indicated with the "GROUND" graphic symbol.
  - f) - All equipotential connections with plugging device must be connected when power is OFF.



- ENCLOSURES:
- Table of effected inspections and values.
  - Inspection report.
  - Statement issued by the installer concerning type of cable installed.
  - Photocopy of the original report of test run by smoke detector type " RAPID SMOKE ".

Villorba (TV) July 7th, 1989

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E L E C T R I C     S Y S T E M

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## E L E C T R I C      S Y S T E M

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### DESCRIPTION

The electric system originates from the connecting terminal board located inside a connector block on the left side of the semitrailer.

From such connector block, the feeder line to the main switchboard located inside the ticket counter, is shunted.

From the main switch of the above mentioned switchboard, a 50 KW Autotransformer is feeded. This Autotransformer allows tension changes according to the local grid.

The Autotransformer has 4 terminals and each one of them indicates a different tension. The tension change can be effected by connecting the feeder line to the correspondent terminal according to the local tension.

On the front of the main switchboard, is located the main switch with built-in circuit breaker, as a protection of the line which controls the hydraulic pump for the setting up and levelling of the attraction.

~~Near the above mentioned pump, there is a switch with built-in~~ motor protector and reverser which is needed to reverse the direction of hydraulic pump motor rotation in case feeding is reversed. An additional reverser is located on the main switchboard and allows reversing of all inner motor rotations.

THE GROUND TERMINAL IS LOCATED NEAR THE CONNECTOR BLOCK.

IT IS COMPULSORY TO CONNECT IT TO AN EFFICIENT  
GROUNDING SYSTEM.

THE MANUFACTURER DECLINES ALL RESPONSIBILITY IN CASE  
OF INOBSERVANCE OF ABOVE INSTRUCTION.

## PERIODIC INSPECTION

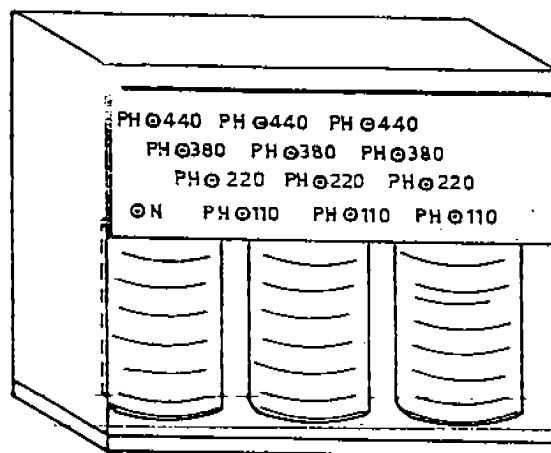
- One month after the first setting at work, all terminals and in particular the following ones, should be properly tightened:
  - terminals located in the main switchboard
  - terminals of switches
  - terminals of thermic relays
  - terminals of different relays
  - terminals of the lamps
  - etc.
- This procedure is to be repeated each 6 months approx. Make sure that it is effected with power off.
- At every day opening, emergency lights should be properly checked and efficiency tested.
- Each 4 months, attraction should be switched of, thus setting emergency lights at work, in order to check their autonomy. Should autonomy of any light be less than 1 hour, its battery has to be replaced.
- Each 6 months, the contacts of the power-meter located inside the main switchboard should be checked and cleaned with suitable product. Should said contacts prove to be particularly worn, they have to be replaced by original spare parts.
- Periodically, dust should be wiped off from the Autotransformer and air slits properly checked.
- In case of fire in the electric system or nearby, do not use water ! Just make use of extinguishers suitable for electric systems. Do not use powder extinguisher !
- It is recommended that any operation is effected by trained and skilled personnel only and with power off.
- At least once every 6 months, check condition of brush contacts and related rail contacts of the car feeder.

## FEATURES OF THE FEEDING SYSTEM

- FEEDING: 110/220/380/440 V 3 PHASE (THROUGH AUTOTRANSFORMER)
- TENSION CHANGE: BY CHANGING CONNECTIONS ON THE  
AUTOTRANSFORMER TERMINALS
- AUTOTRANSFORMER POWER: 50 KW
- FEEDING CONDUCTORS: MMQ 70 (mmq = square millimeters)
- SOCKETS LOCATED INDOOR: SCHUKO TYPE, 10A/110 V
- ELECTROMAGNETIC SWITCH COIL FEEDING: 24 V THRU 29 V
- LAMP FEEDING: 220 V

TRANSFORMER (Picture 12 - Detail A)

WRING DIAGRAM OF THE AUTOTRANSFORMER TERMINAL BOARD.



TOP IMPORTANT

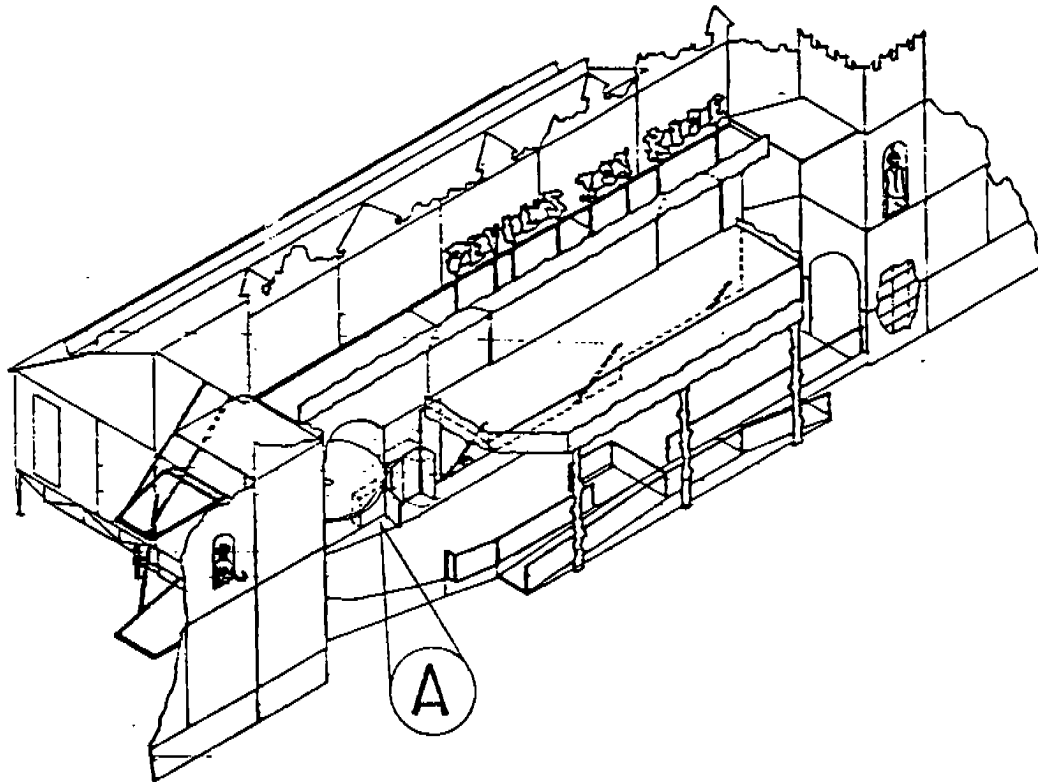
The 3-phase 50 KVA autotransformer is needed to feed the whole equipment.

It is preset to be feeded by each one of the following tensions:

|        |         |
|--------|---------|
| 440 V. | 3-Phase |
| 380 V. | "       |
| 220 V. | "       |
| 110 V. | "       |

Connect the 3 autotransformer feeding wires to the proper terminals according to locally available feed.

FIG. 12



Elect-7



# TECHNICAL ADVISES FOR THE CAR ELECTROSTATIC GENERATOR START

- 1) Switch main switch on ( Picture # 11 Det.# 11)
- 2) Switch automatism switch on (Pict.# 11 det.# 40)
- 3) Switch car feeder lever switch on (Pict.# 11 det. # 53)
- 4) Start compressors (Pict.# 11 det. # 36 - 37) and make sure that air pressure reaches 4 atmospheres to let doors work properly. A pressure sensor will have cars start, as soon as preset pressure is reached.
- 5) Switch commutators of spiral rise, track and station, on (Pict.# 11 det. # 29-30-31).

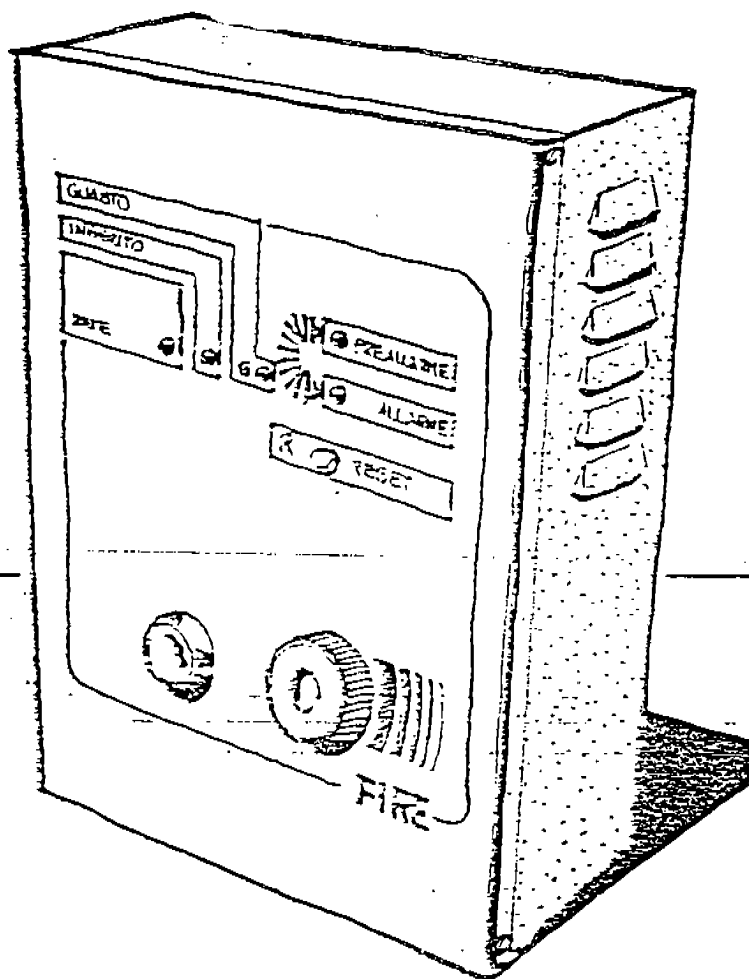
After effecting all above operations, you can set the equipment at work.

## ADVISES IN CASE OF NON - WORKING OF CAR ELECTROSTATIC GENERATOR

### Safeties:

- 1) Check compressor air sensor (Pict.1075-B code 72300051) in case of failure, it does not make cars start. If so, replace sensor.
- 2) Check car feeder fuse 24V (Picture # 11 - det.46)
- 3) Check electromagnetic switch fuse 24V (Pict. # 11 - det.47).
- 4) Check electrostatic generator fuse, 63A departure , fuse 63A spiral rise fuse, 100A track fuse, 63A station fuse (Pict.#11, details # 11 thru 24).
- 5) Make sure that there is tension on the rail track. If so, an electronic device, located in the box # 4, close to the electrostatic generator, will be activated and will not allow car start, will open doors and put emergency lights on. On box # 4 cover, there is a lever switch, which, if set in "ON " position, will cut electronic device out, and will let electrostatic generator start. Should cars, after this operation NOT start, it means that car must be broker down. In such a case replace same immediately.
- 6) Check fuses of departure electronic card, which is also located in the box # 4. Should this not be working, the hand of the departure voltmeter (Pict.# 11 detail # 25) will remain at " 0 " value, even after pressing departure push-button (Picture # 11 det. # 68).
- 7) When the smoke detectors are detecting smoke, they shut main switch off and, consequently, the car electrostatic generator will stop working.

ELECT-9



CENTRALE ELETTRONICA ANTINCENDIO

MOD. SP FIRE

MANUALE DI INSTALLAZIONE E DI IMPIEGO

sts elettronica s.r.l.

ELECT-10

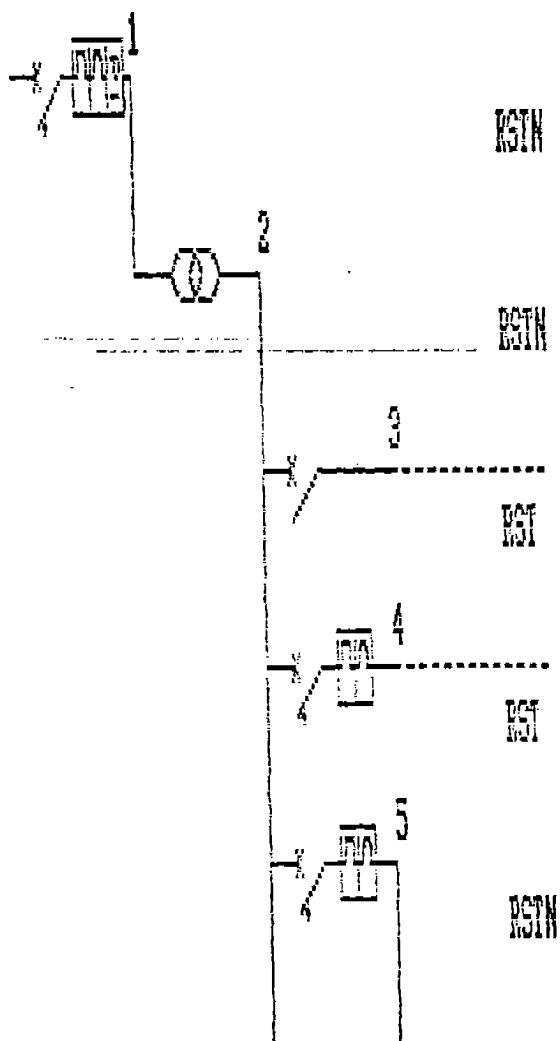
MAIN SWITCHBOARD

4.0

REF.: GHOST TRAIN (Sect. n° 1)

-PAG. 1-

CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



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MAIN SWITCH AND CIRCUIT BREAKER  
Item THITRONIC set 400 Id 0.30  
Sect. mm2 10

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380 V AUTOTRANSFORMER SECTION  
Item AUTOTRANSFORMER set 0 Id 0.00  
Sect. --

=====

COMPRESSORS 1/2 PHASE REVERSER  
Item 40 A REV. set 40 Id 0.00  
Sect. mm2 4

=====

OLEODYNAMIC PUMP MAGNETOTHERMIC SWITCH  
Item 3X20 A set 40 Id 0.00  
Sect. mm2 4

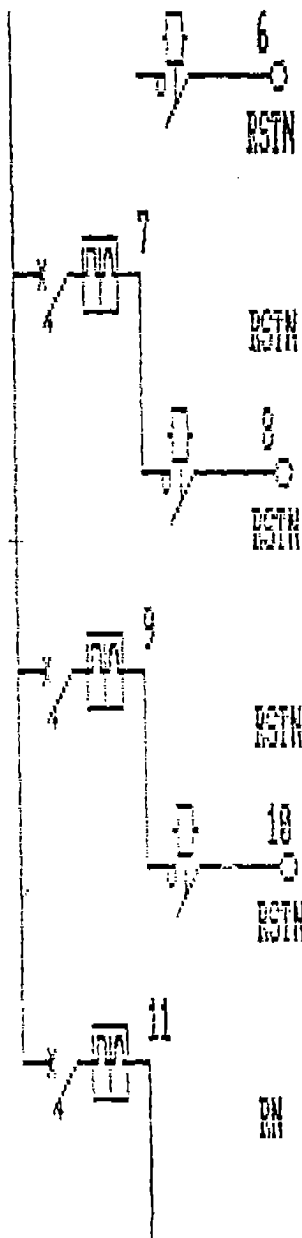
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LIGHTING EFFECT SWITCH (7 SETS OF HEADLIGHTS)  
Item 3X32 A set 40 Id 0.00  
Sect. MM2 10

=====

REF.: GHOST TRAIN (Sect. n° 1)

CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



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ELECTROMAGNETIC SWITCH:  
LIGHTING EFFECT CONTROL BOARD FEED

Item C26        set 0    Id 0.00  
Sect. MM2 10

=====

LIGHTING EFFECT SW. (BORDER BULBS)

Item 3X16 A    set 16    Id 0.00  
Sect. MM2 4

=====

ELECTROMAGNETIC SWITCH: LIGHTING  
EFFECT CONTROL BOARD FEEDING

Item C28        set 0    Id 0.00  
Sect. MM2 -

=====

LIGHTING EFFECT SWITCH  
(SIGN BULBS)

Item 3X16 A    set 16    Id 0.00  
Sect. MM2 4

=====

ELECTROMAGNETIC SWITCH: LIGHTING  
EFFECT CONTROL BOARD FEEDING

Item C29        set 0    Id 0.00  
Sect. MM2 -

=====

TRANSFORMER SWITCH: AUTOMATISMS

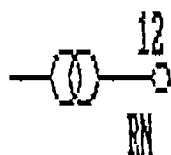
Item 2x16  
Sect. MM2 4

=====

REF.: GHOST TRAIN (Sect. nº 1)

-PAG. 3-

CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



=====

|                             |     |     |           |
|-----------------------------|-----|-----|-----------|
| 220-380/24-29 V TRANSFORMER |     |     |           |
| Item                        | TRS | set | 0 Id 0.00 |
| Sect.                       | MM2 | -   |           |

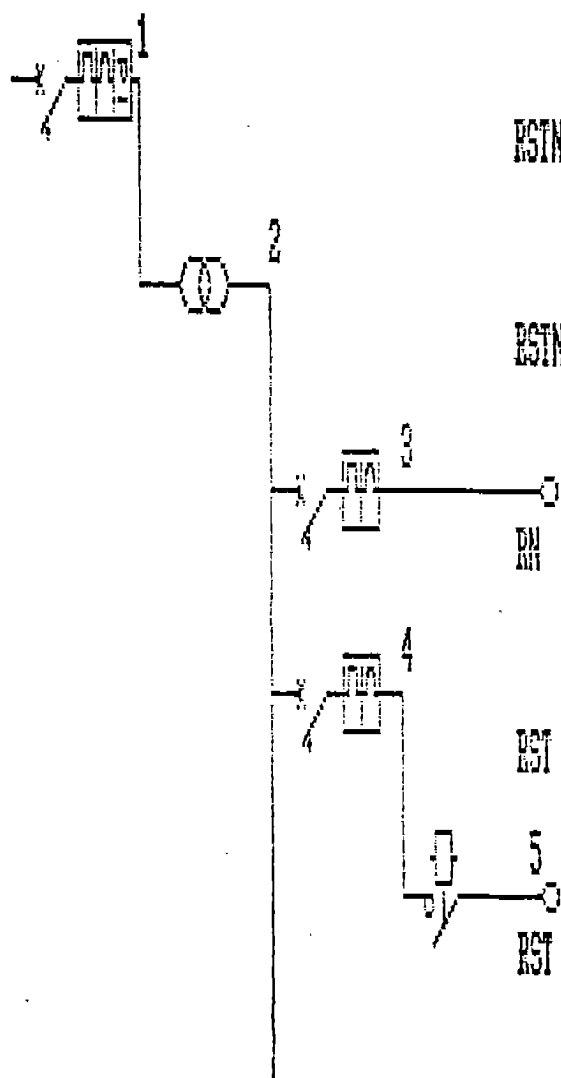
=====

NOTICE: IN THE FOLLOWING SWITCHBOARD DIAGRAM (SECTION N° 2) (220V - 3-PHASE), SWITCH N° 1 AND AUTOTRANSFORMER N° 2 CORRESPOND TO THE SAME ELEMENTS INDICATED IN THE SWITCHBOARD DIAGRAM SECTION N° 1.



REF.: GHOST TRAIN (Sect. n° 2) (220 V 3-PHASE)

CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



=====

MAIN SWITCH AND CIRCUIT BREAKER

Item THITRONIC set 400 Id 0.30

RSTN Sect. MM2 1 0

=====

220 AUTOTRANSFORMER SECTION

Item: AUTOTRANSF set 0 Id 0.00

RSTN Sect. MM2 --

=====

EMERGENCY LIGHTING MAGNETOTHERMIC SWITCH

Item 3x10A SW. set 10 Id 0.00

RSTN Sect. MM2 2.5

=====

SERVICE LIGHTING MAGNETOTHERMIC SWITCH

Item 3x16A SW. set 16 Id 0.00

RSTN Sect. MM2 4

=====

SERVICE LIGHTING ELECTROMAGNETIC SWITCH

Item C20 set 0 Id 0.00

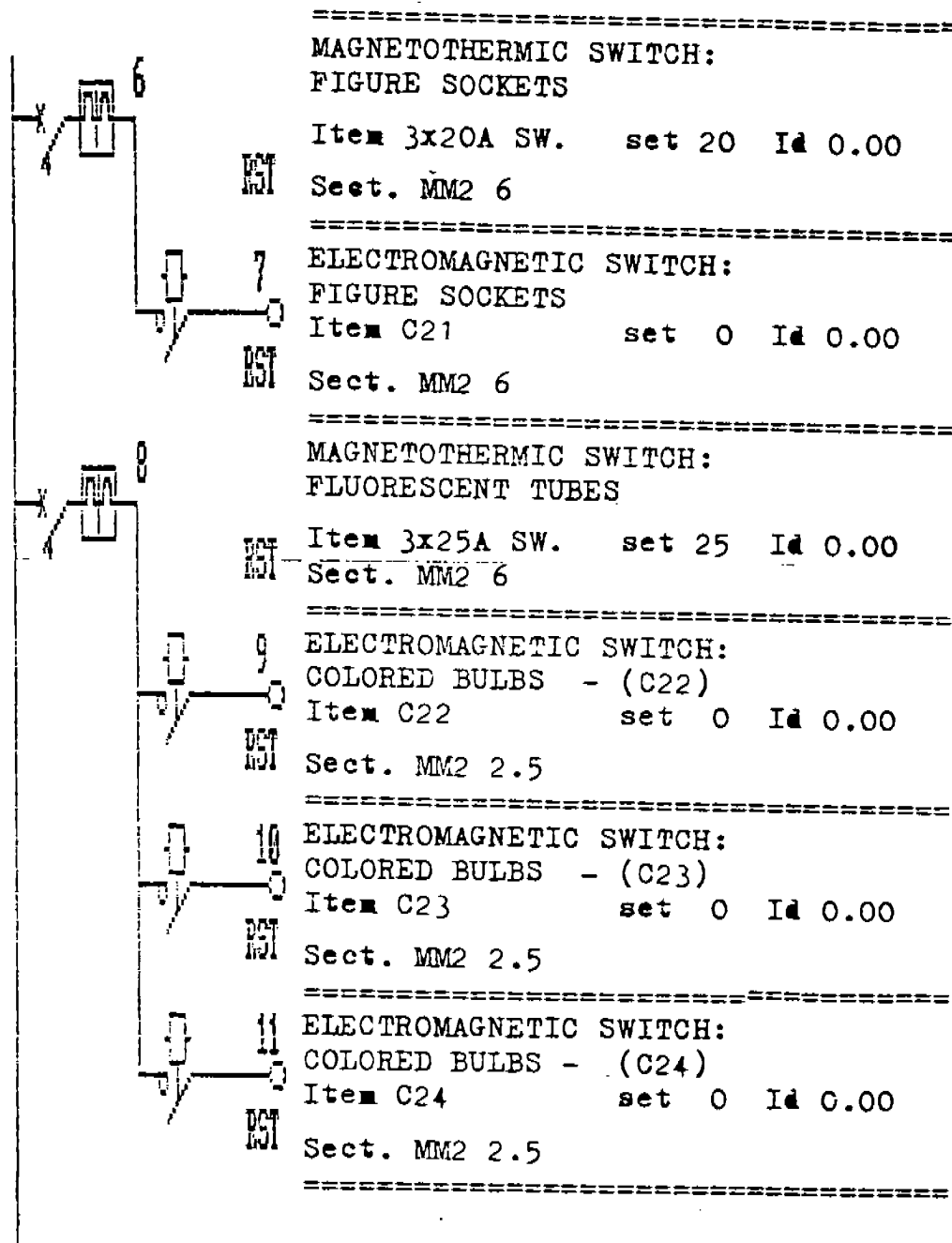
RSTN Sect. MM2 4

=====

REF.: GHOST TRAIN (Sect. n° 2) (220 V 3-PHASE)

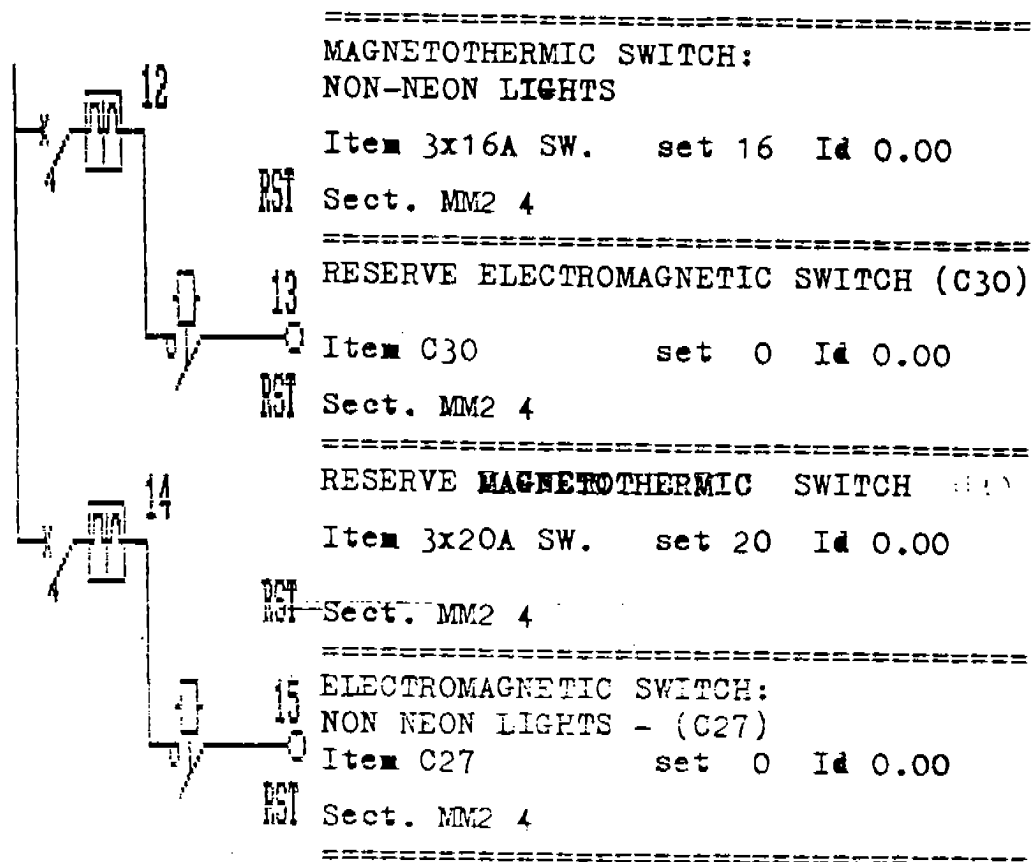
-PAG. 2-

CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



REF.: GHOST TRAIN (Sect. n° 2) (220 V 3-PHASE)

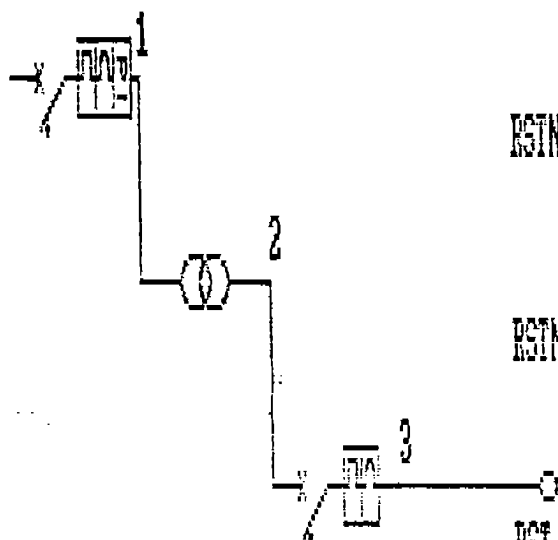
CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



NOTICE: IN THE FOLLOWING SWITCHBOARD DIAGRAM (SECTION N° 3)  
(110 V - 3-PHASE), SWITCH N° 1 AND AUTOTRANSFORMER N° 2  
CORRESPOND TO THE SAME ELEMENTS INDICATED IN THE SWITCH-  
BOARD DIAGRAM SECTION N° 1.

REF.: GHOST TRAIN (Sectn° 3) (110 V 3-PHASE)

CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



=====

MAIN SWITCH + CIRCUIT BREAKER

Item THITRONIC set 400 Id 0.30

RSTN Sect. MM2 10

=====

110 V AUTOTRANSFORMER SECTION

Item AUTOTRANSF. set 0 Id 0.00

RSTN Sect. MM2 -

=====

MAGNETOTHERMIC SWITCH:

SERVICE OUTLETS

Item 3x16A SW. set 16 Id 0.00

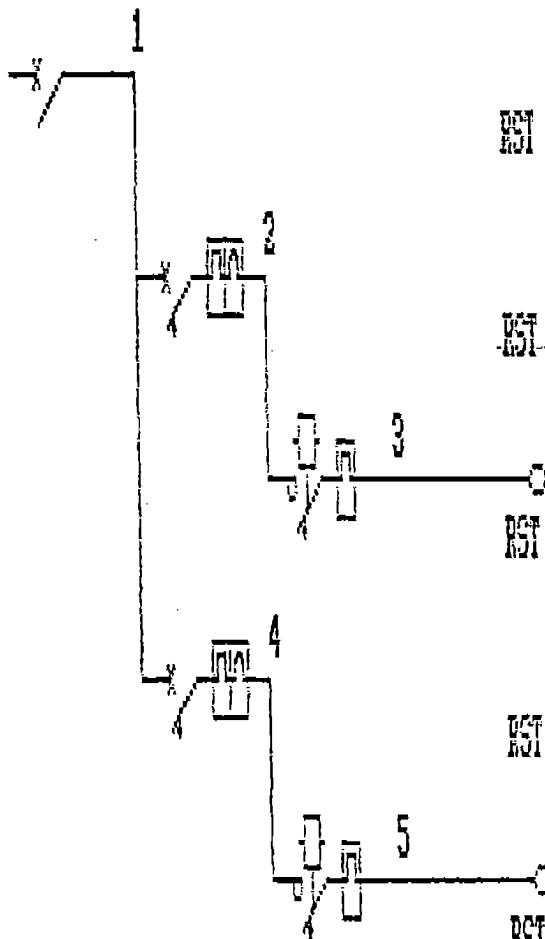
RST Sect. MM2 4

=====

NOTICE: IN THE FOLLOWING SWITCHBOARD DIAGRAM (SECTION N° 4)  
(COMPLETION OF SECTION N° 1), PHASE REVERSER N° 1  
CORRESPONDS TO PHASE REVERSER INDICATE AT N° 3 OF THE  
SWITCHBOARD DIAGRAM SECTION N° 1.

REF.: GHOST TRAIN (Sect. n° 4) (COMPLETION OF SECT N° 1)

CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



=====

PHASE REVERSER  
(AT N° 3 OF SECTION N° 1)

Item 40 A REV. set 40 Id 0.00

RST Sect. MM2 10

=====

MAGNETOTHERMIC SWITCH:  
COMPRESSOR N° 1

Item 3x20 A set 20 Id 0.00  
RST Sect. MM2 4

=====

ELECTROMAGNETIC SWITCH + THERMIC  
RELAY: COMPRESSOR N° 1  
Item (C10) 10...16A set 14 Id 0.00

RST Sect. MM2 4

=====

MAGNETOTHERMIC SWITCH:  
COMPRESSOR N° 2

Item 3x20 A set 20 Id 0.00  
RST Sect. MM2 4

=====

ELECTROMAGNETIC SWITCH + THERMIC  
RELAY: COMPRESSOR N° 2  
Item (C10) 10...16A set 14 Id 0.00

RST Sect. MM2 4

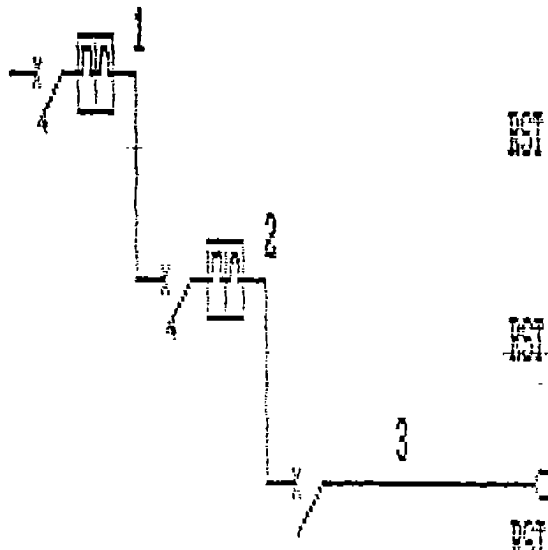
=====

NOTICE: IN THE FOLLOWING SWITCHBOARD DIAGRAM (SECTION N° 5)  
(COMPLETION OF SECTION N° 1), THE HYDRAULIC PUMP SWITCH  
N° 1 CORRESPONDS TO HYDRAULIC PUMP MAGNETOTHERMIC SWITCH  
INDICATE AT N° 4 OF THE SWITCHBOARD DIAGRAM SECTION N° 1.



REF.: GHOST TRAIN (Sect. n° 5) (COMPLETION OF SECT. N° 1)

CIRCUIT: 380/220 3-PHASE + NEUTRAL 60 HZ



=====

HYDRAULIC PUMP SWITCH  
(AT N° 4 OF SECTION N° 1)

Item 3x20 A set 20 Id 0.00

EST

Sect. MM2 4

=====

THERMIC SWITCH: ADJUSTABLE FROM  
6.3 THRU 10A

Item THERM. 6.3...10A set 8 Id 0.00

EST

Sect. MM2 4

=====

HYDRAULIC PUMP PHASE REVERSER

Item 25A REV. set 25 Id 0.00

EST

Sect. MM2 4

=====

## 5. ELECTRIC CONNECTION AND VEHICLE LEVELLING (Picture # 1)

### a) Electric connection.

The first thing to do after getting to the fairgrounds, is the connection of the feeding wire. By opening the door located along the right side of the vehicle, you will have access to the terminal board " A ". have the feeding wires come through the hole of the board "A" and connect them to the proper terminal, as shown in the picture.

### b) Oleodynamic system ignition.

To have access to the oleodynamic system controls, proceed as follows:

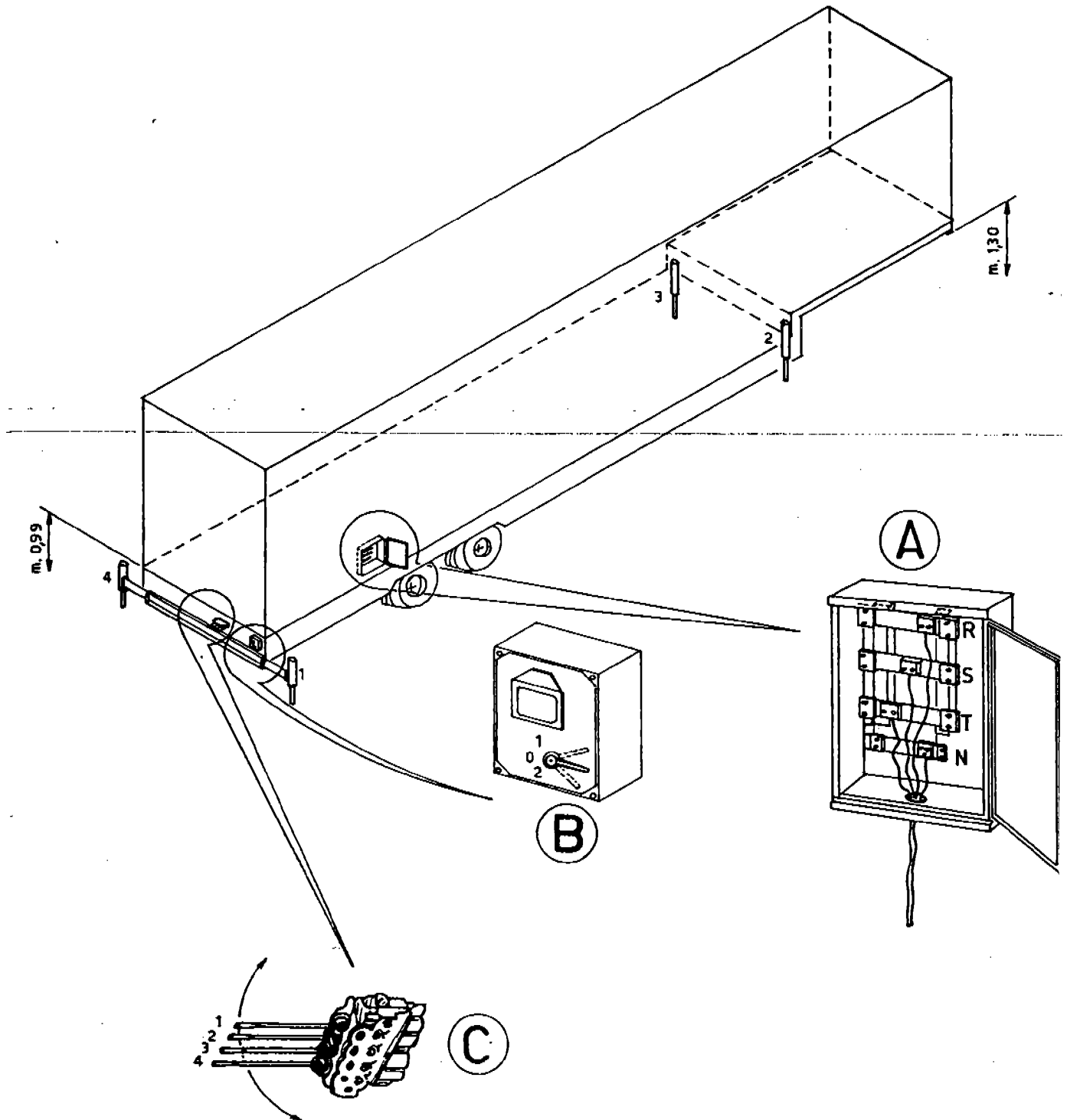
1) open the door of the box located at the rear of the vehicle. The oleodynamic pump is located inside the box (indicated as " B ").

2) Set handle in the " 1 " position. Should oleodynamic pump not be working, set handle in the " 2 " (reserve) position.

### c) Vehicle levelling.

Take pins off the rear levelling cylinders and have cylinders slide out. Make sure that the lever faucets of the 2 rear cylinders, as well as of the 2 front cylinders, are open.

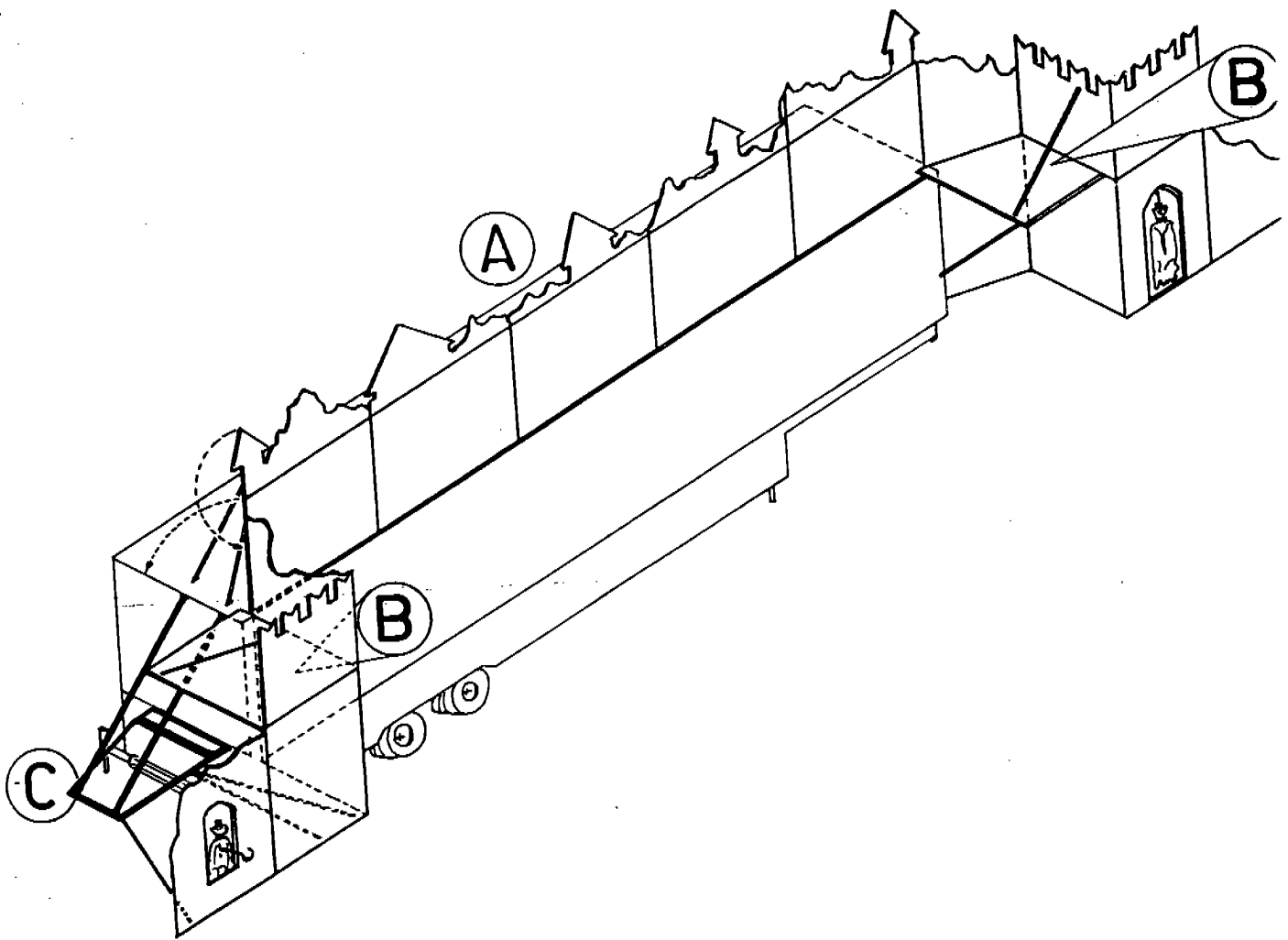
FIG. 1



6. ERECTION OF UPPER DECK WALLS, PLATFORMS WITH SIDE WALLS AND UPPER DECK FIGURES (Picture # 2).

- a) Erect wall " A " from the top of the vehicle, and fix it with braces on the back (see picture # 3, also).
- b) Unfold plates " B " and raise related walls. Fix with braces (see picture # 3).
- c) Unfold and fix structure indicated as " C ". Then complete fixing of remaining side walls by means of suitable braces.
- d) Place figures in the proper seats of the side towers and connect their air hoses to the outlets.

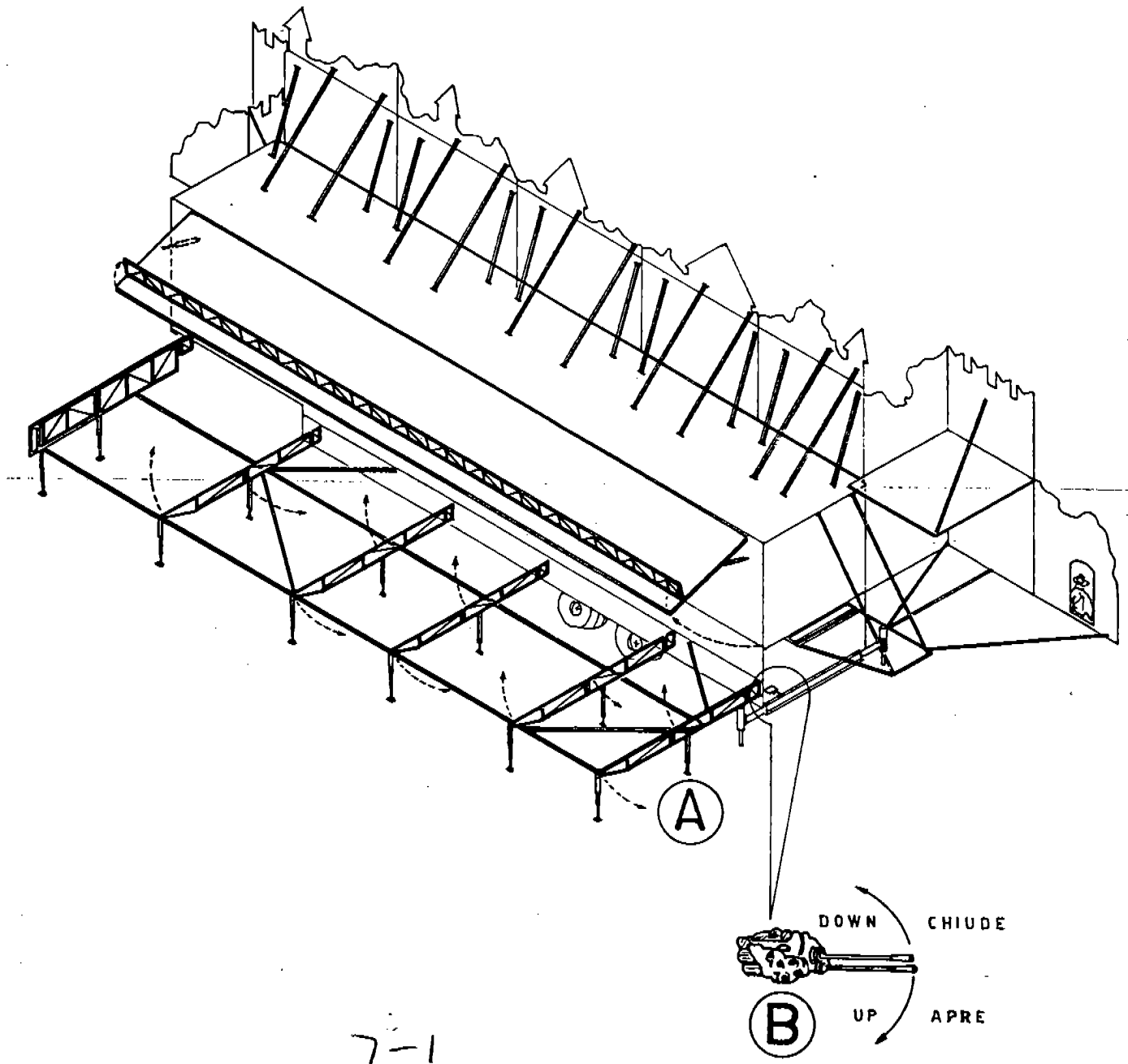
FIG. 2



**7. ASSEMBLY OF BACK FLOOR SUPPORTS AND BACK ROOF RAISING (Picture # 3)**

- a) Slide floor support portals (jacks) " A " down, and level them properly by adjusting their glides.  
Secure portals by means of linking and stiffening braces.
- b) Before raising roof, lift lengthwise located trestle and secure same with braces.  
Operating manual lever indicated as " B "; raise roof all the way up, until it reaches position as shown in the picture.

FIG. 3



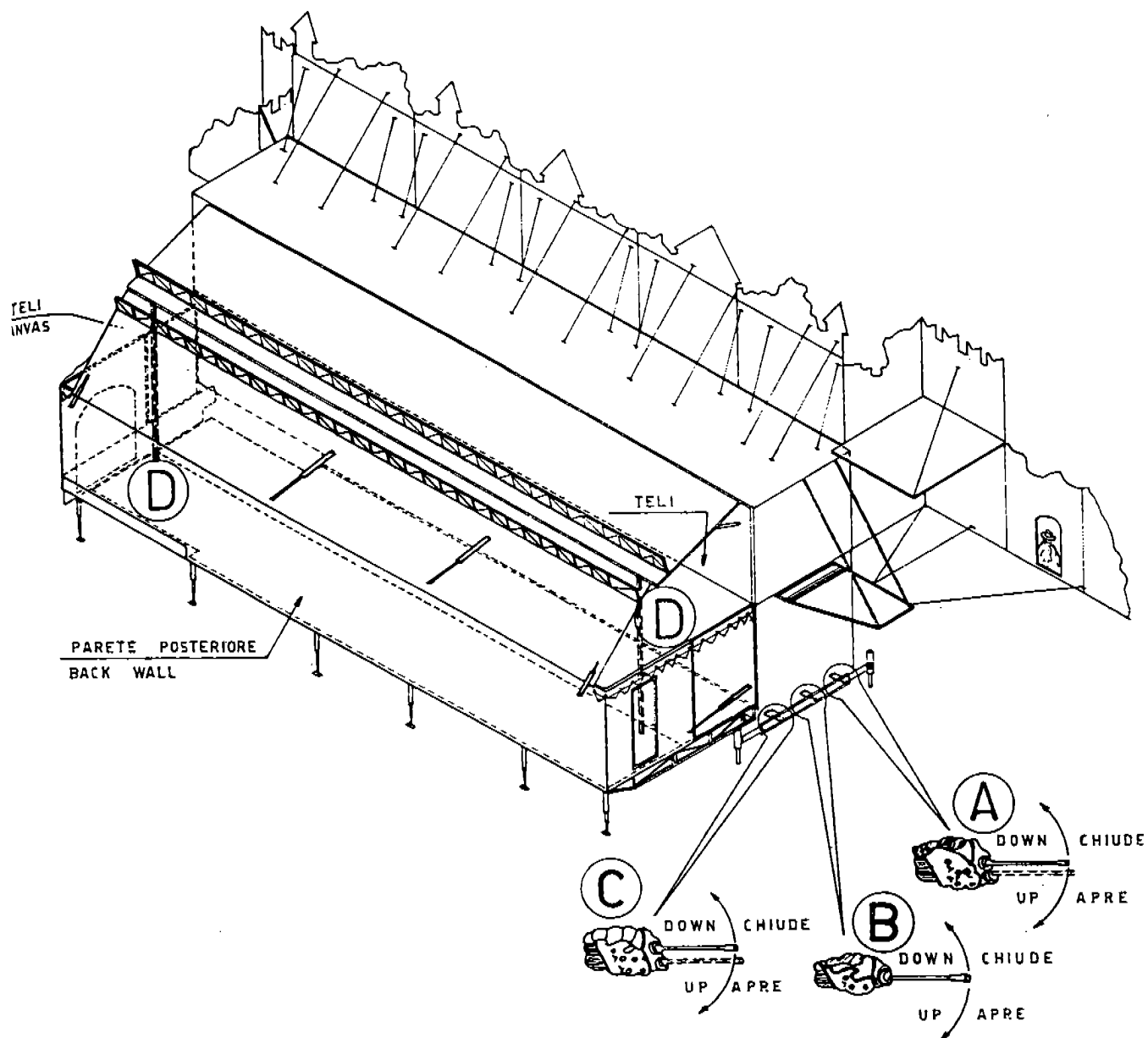
7-1

**8. BACK ROOF RAISING, BACK ROOF OPENING, BACK WALL ROOF, ROOF SUPPORTS AND SIDE COVERING CANVAS (Picture # 4).**

- a) To raise back roof, make sure that locking pins of column are taken off. Operating the manual lever indicated as " A ", raise back roof until the limit stop. Then, insert column locking pins and lower roof until they reach the proper seats.
- b) The setting-up of the back floors, automatically involves the movement of the back wall and its roof. This action is effected by operating the manual lever " B " , proceeding very slowly and making sure that the wheels properly slide on their slideway.
- c) Before raising back roof, position properly the lengthwise located trestle and secure it with braces. Then operate manual lever " C ". Once roof is raised, place 2 roof support columns. (The ones located at the edges and indicated as " D ") between roof and floor. The overlap and matching of roofs determine the proper setting.
- d) Once all mechanical operations have been completed, stopper sides: down, by means of sheet panels, up with fire-retardant canvas, tied up to the structure with ropes.



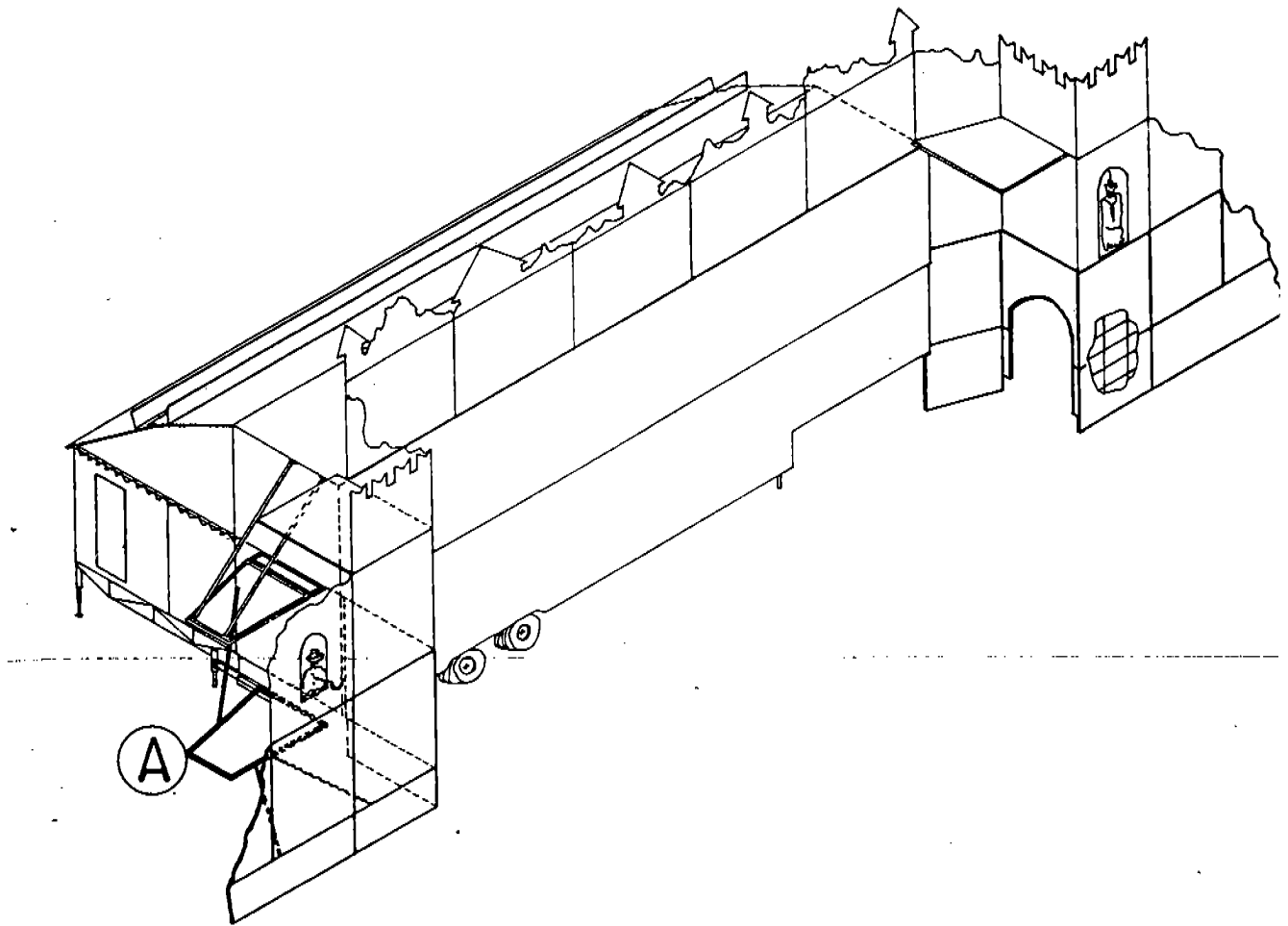
FIG. 4



9. ERECTION OF LOWER SIDE WALLS (Picture # 5).

- a) Unfold and fix structure indicated as " A ". Unfold side walls, panel by panel, putting support jacks. This operation is to be effected gradually, linking and securing walls with braces. Complete assembly, applying the lowest set of panels to reach the ground.

FIG. 5

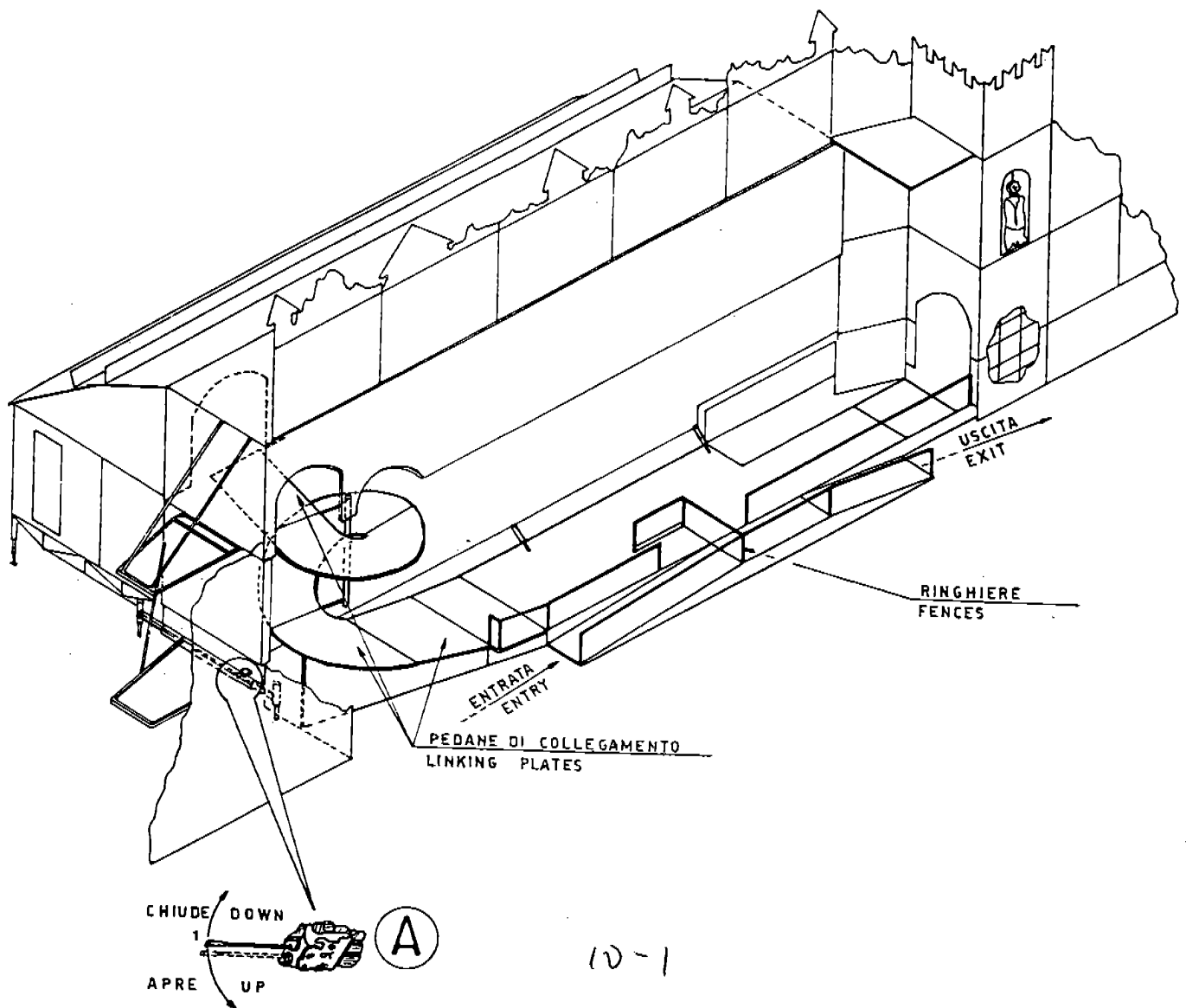


9-1

10. SETTING-UP OF STATION FLOOR PLATE, FENCES, SPIRAL RISE, AND LINKING PLATES (Picture # 6).

- a) Operating manual lever " A ", you open the station floor plate: level it perfectly, by adjusting the support glides.
- b) Approach entry and exit floor plates to the station floor plate and lock them with the proper pins.
- c) Set fences up by inserting them into the proper seats, matching the number (indicated at the base).
- d) For the setting-up of the spiral rise proceed as follows. The spiral rise is divided in 2 platforms one is steady and the other one is movable. Turning this latter anticlockwise, it will match the steady one. Hook them together with pins. Proceed the same way for the linking floor plates, both in the upper and lower part.

FIG. 6



10-1

11. SETTING UP OF THE LOWER DECK DOUBLE FRONT, UPPER DECK CANTILEVER AND SIGN (Picture # 7).

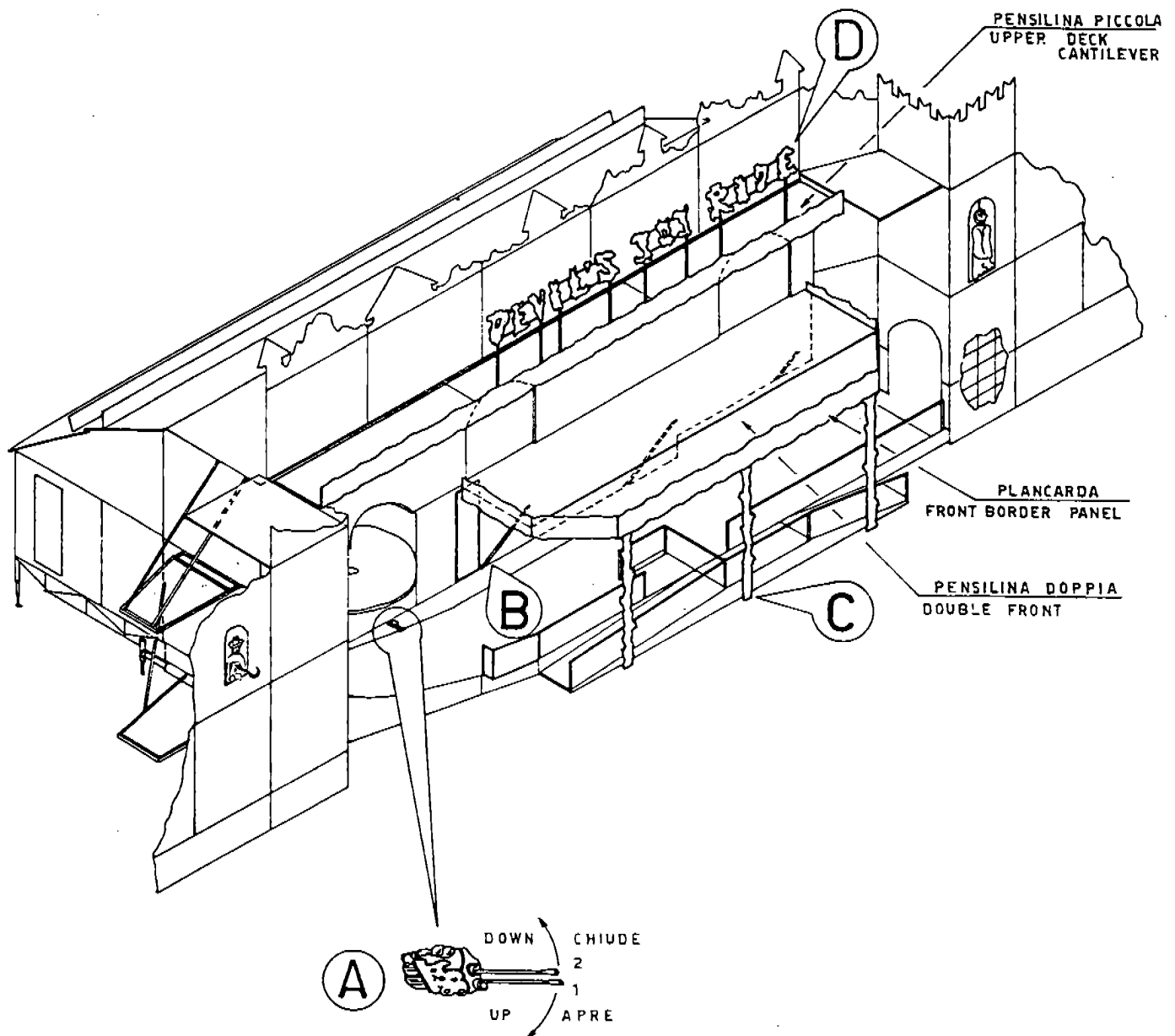
a) Lower deck double front.

Operating manual control " A ", lever " 1 ", raise lower deck front by 45 degree. Then operate lever " 2 " and raise outer part by 90 degree. Revert to lever " 1 " in order to complete raising of the indoor part. Support this one by means of braces, as indicated in " B ". Revert to lever " 2 " and complete raising of outdoor part, to perfectly match the indoor one. Raise the border panel, then link double front to the ground with supporting columns indicated as " C ".

b) Upper deck cantilever and sign.

Before raising upper deck cantilever, set up sign, indicated as " D ", on it, as well as the border panel. Then, raise one element of the cantilever at a time, securing same to the roof wall by means of braces.

FIG. 7



12. SETTING UP OF INDOOR SLOPE PLATES AND INDOOR CANTILEVER (Picture # 8).

a) Slope plates.

Set platform stands on the floor, with related supporting braces.  
Place platforms on the stands and lock them with the related pins.

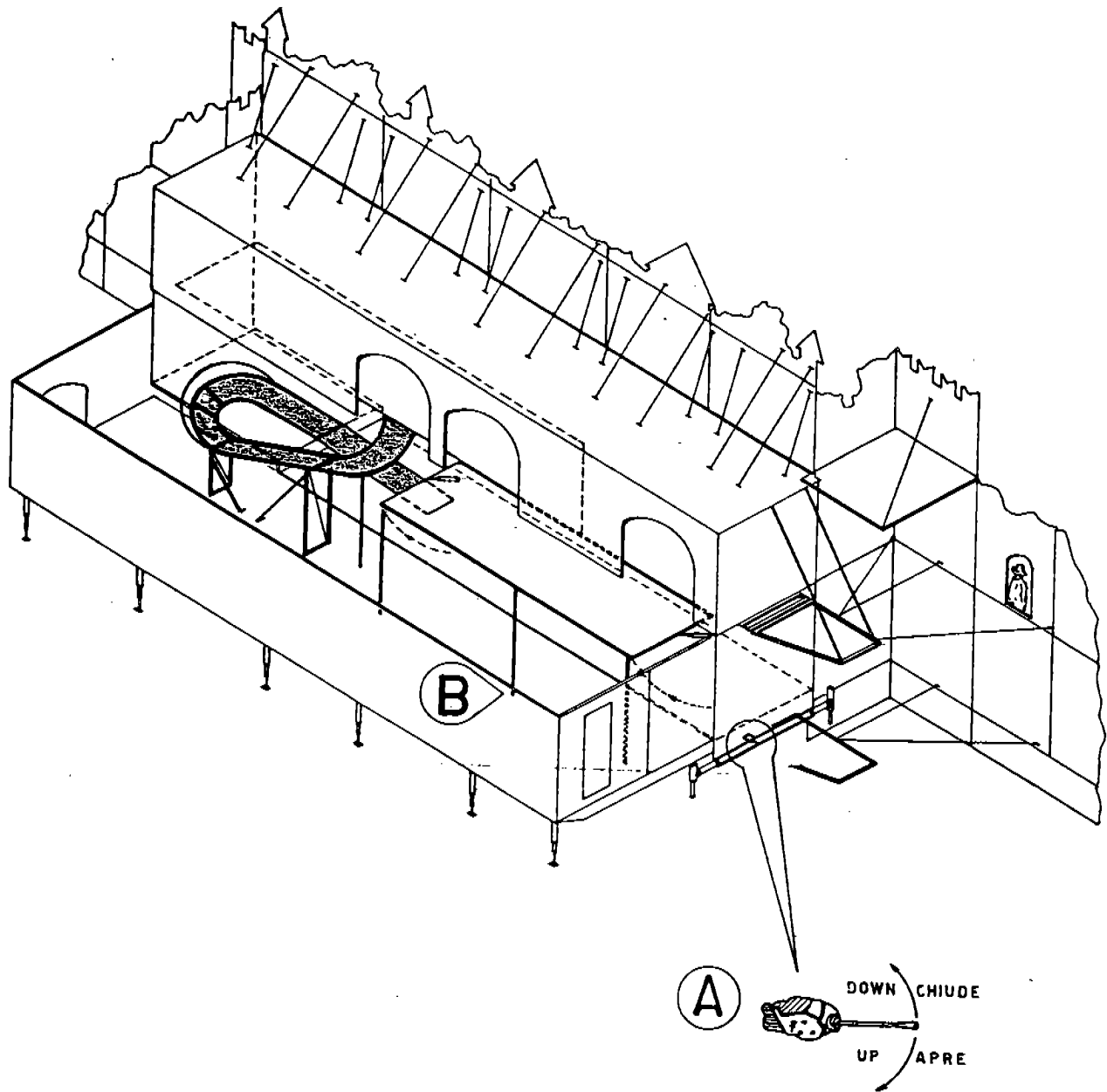
b) Indoor cantilever.

The raising of the indoor cantilever is effected by operating manual lever indicated as " A ". Raise cantilever, level it, then secure it with braces, indicated as " B ", to the floors.

c) Once all oleodynamic operations have been completed, set lever of the oleodynamic group in the " 0 " position as shown in the picture # 1, detail " B ".  
Then lock the 2 doors.



FIG. 8

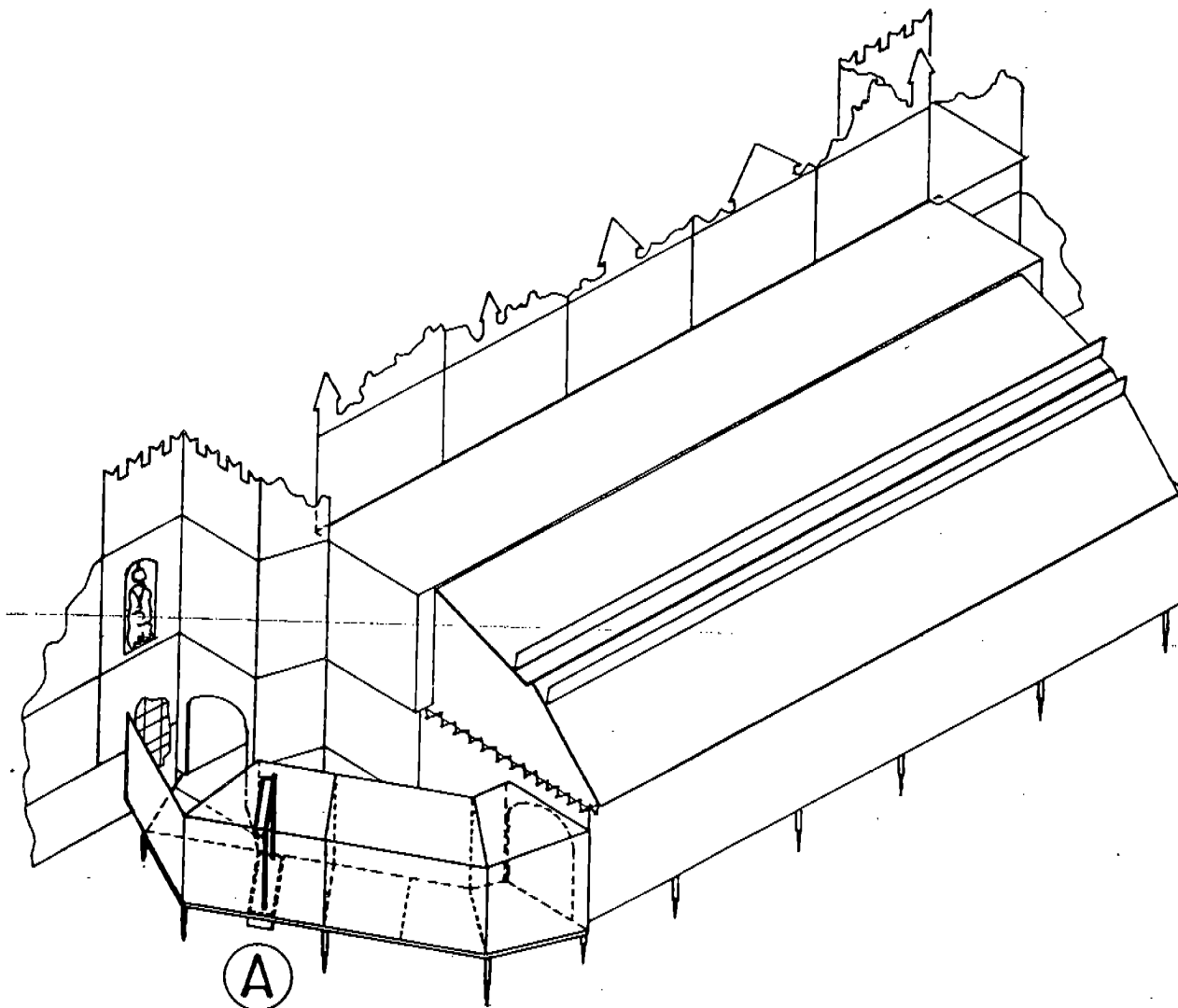


12-1

**13. SETTING UP OF OUTER TUNNEL AND WATERFALL (Picture # 9).**

- a) Set up the tunnel floor by securing it to the back floor at the back and to the station at the front, fixing to the proper joints. Support tunnel, by adjusting jack glides to the ground.
- b) Set up the waterfall device in the location indicated as "A", connecting the air hoses to the proper outlets. Proceed the same way for the electric feeding wire. Before setting waterfall at work, top up basin with water.
- c) Complete tunnel setting-up, covering sides with proper side and floor panels and fix them one another in their seats by means of the proper pins.

FIG. 9

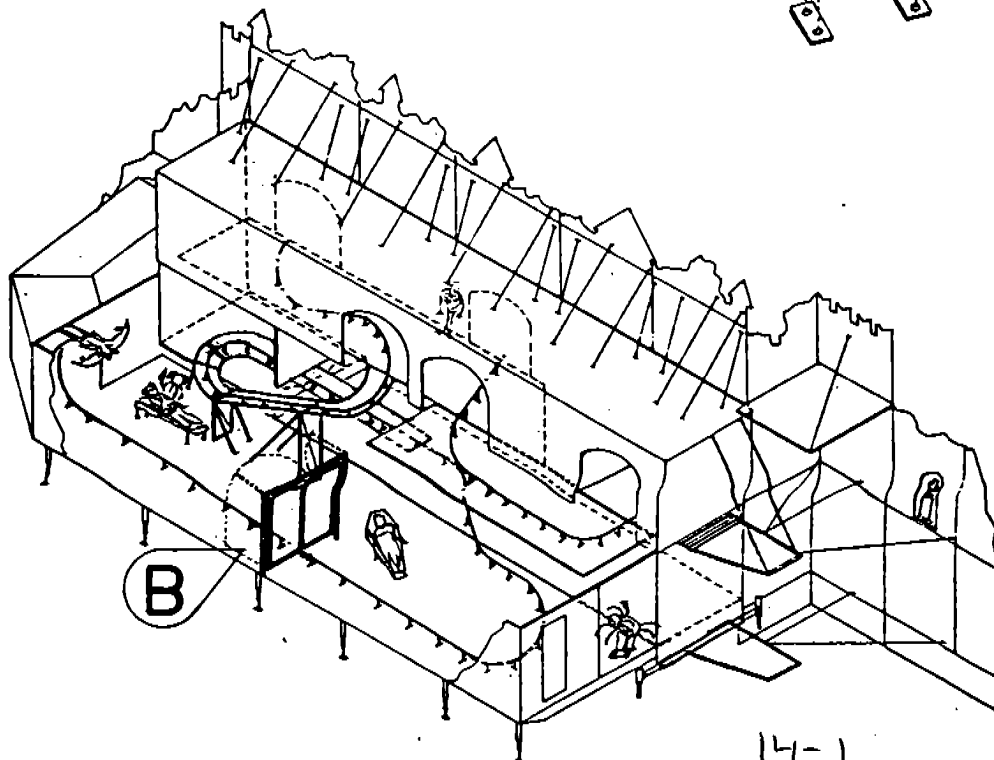
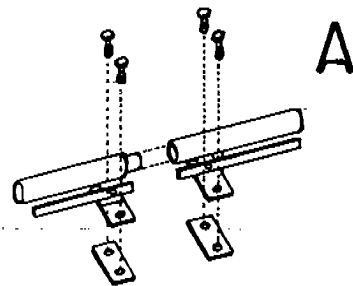
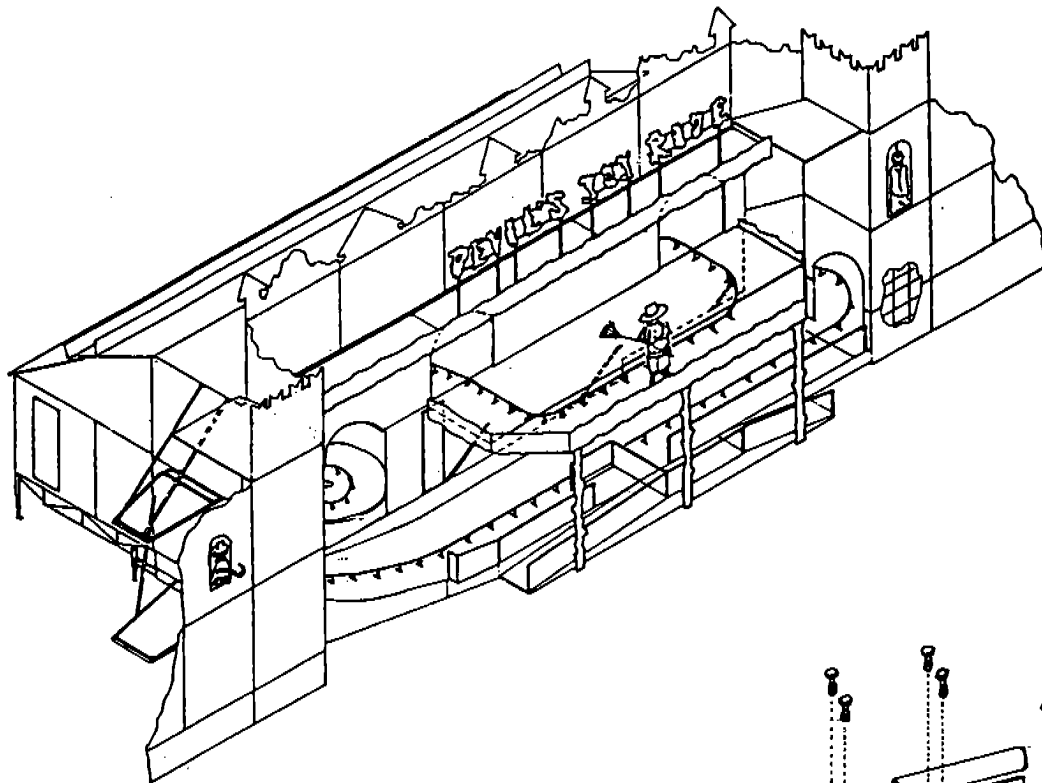


13-1

14. RAIL ASSEMBLY, PNEUMATIC DOOR, AND FIGURES (Picture # 10).

- a) The rail-track, split in several sections, is anchored to the floor by means of tightening screws, as indicated with " A ". There is no assembly sequence to be followed: each section can be fixed and taken out at any time and location of the rail-track.
- b) *Set pneumatic door, indicated as " B ", into the proper back floor seats and connect air hoses to the related outlets. As far as the other doors are concerned, you only need to connect the air cylinder to the related doors.*
- c) Setting-up of figures: Place them along the way as shown in the picture # 10 and connect the plugs, microswitches and air hoses to the related outlets.
- d) After that, the setting-up of the attraction is completed, to tear it down proceed exactly the same way inversely.

FIG. 10



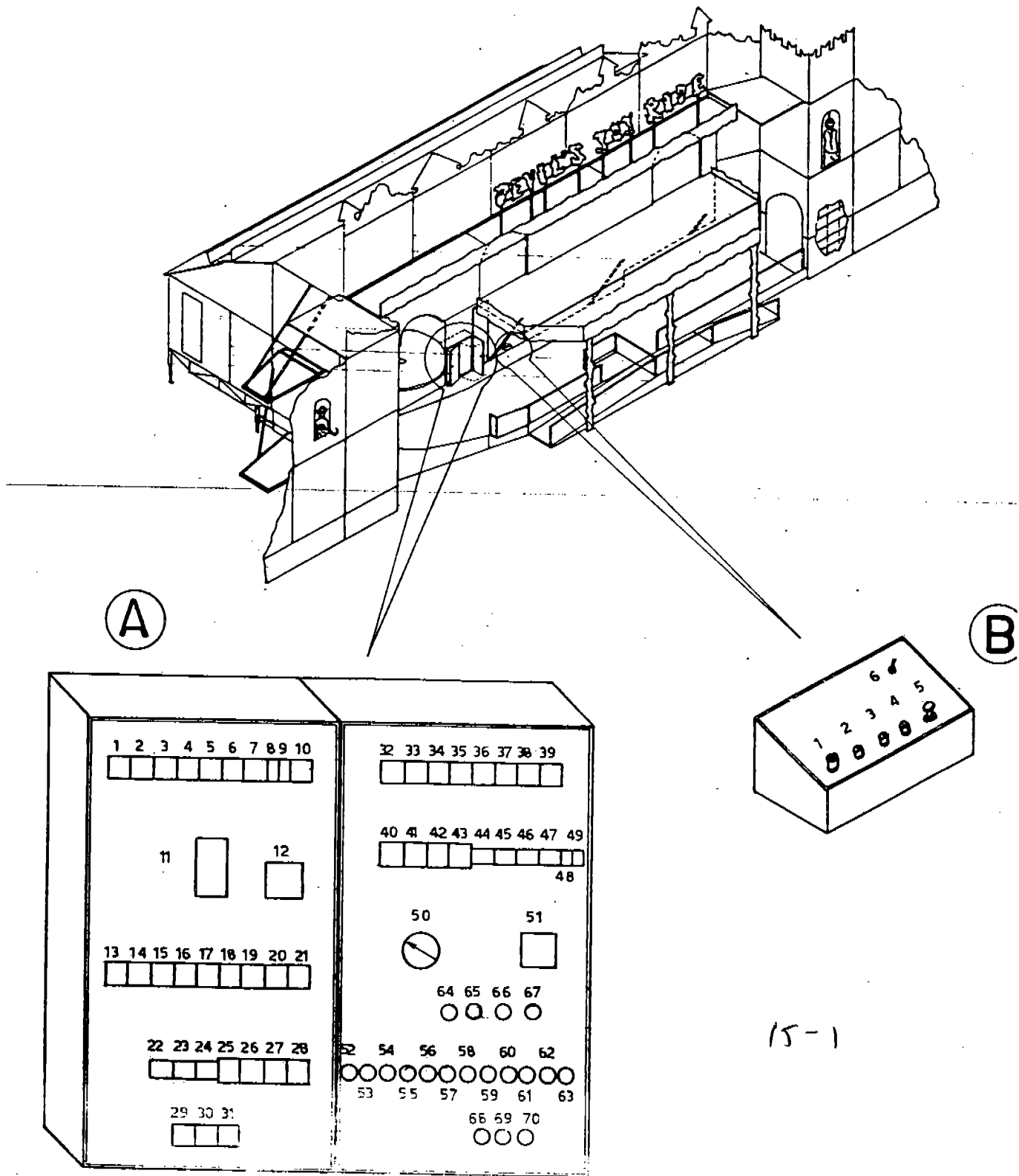
SWITCHBOARD " A "

- |     |                              |   |     |                         |
|-----|------------------------------|---|-----|-------------------------|
| 1)  | Volmeter switch              | ! | 36) | Compressor # 1          |
| 2)  | Volmeter                     | ! | 37) | Compressor # 2          |
| 3)  | Amperometer switch           | ! | 38) | Headlights              |
| 4)  | Amperometer                  | ! | 39) | Reserve                 |
| 5)  | Hydraulic pump               | ! | 40) | Circuit breaker         |
| 6)  | Hydraulic pump               | ! | 41) | Non-neon lights         |
| 7)  | Emergency lighting switch    | ! |     | (border lighting)       |
| 8)  | Smoke detector prealarm      | ! | 42) | Front                   |
|     | warning light                | ! | 43) | Sign lighting           |
| 9)  | Smoke detector prealarm bell | ! | 44) | Service sockets 110 V   |
| 10) | Next car departure bell      | ! | 45) | " " "                   |
| 11) | Main switch                  | ! | 46) | Electrostatic generator |
| 12) | Circuit breaker              | ! |     | fuse 24V                |
| 13) | Station fuse 63A             | ! | 47) | Electromagnetic switch  |
| 14) | Station fuse 63A             | ! |     | fuse 24V                |
| 15) | Station fuse 63A             | ! | 48) | Door fuse 24V           |
| 16) | Spiral rise fuse 63A         | ! | 49) | Figure fuse 24V         |
| 17) | " " " "                      | ! | 50) | Air gauge               |
| 18) | " " " "                      | ! | 51) | Reserving gear          |
| 19) | Track fuse 100A              | ! | 52) | Main switch             |
| 20) | " " "                        | ! | 53) | Electrostatic generator |
| 21) | " " "                        | ! | 54) | Indoor service lighting |
| 22) | Departure fuse 63A           | ! |     | switch                  |
| 23) | " " "                        | ! | 55) | Figures                 |
| 24) | " " "                        | ! | 56) | Yellow lighting         |
| 25) | Departure volmeter           | ! | 57) | Red lighting            |
| 26) | Station volmeter             | ! | 58) | Blue lighting           |
| 27) | Spiral rise volmeter         | ! | 59) | Headlights              |
| 28) | Track volmeter               | ! | 60) | Non-neon lights         |
| 29) | Station commutator           | ! |     | (border lighting)       |
| 30) | Spiral rise commutator       | ! | 61) | Front lighting          |
| 31) | Track commutator             | ! | 62) | Sign                    |
| 32) | Indoor service lighting      | ! | 63) | Reserve                 |
| 33) | Service sockets              | ! | 64) | Stop                    |
| 34) | Figures sockets              | ! | 65) | Start                   |
| 35) | Cantilever lighting          | ! | 66) | Car feeder emergency    |
|     |                              |   | 67) | Door opening            |
|     |                              |   | 68) | Departure               |
|     |                              |   | 69) | Arrival station         |
|     |                              |   | 70) | Departure station       |

SWITCHBOARD " B " (HANDY-SWITCHBOARD)

- 1) Departure
- 2) Arrival station
- 3) Departure station
- 4) Start
- 5) Stop
- 6) Door opening

FIG. 11

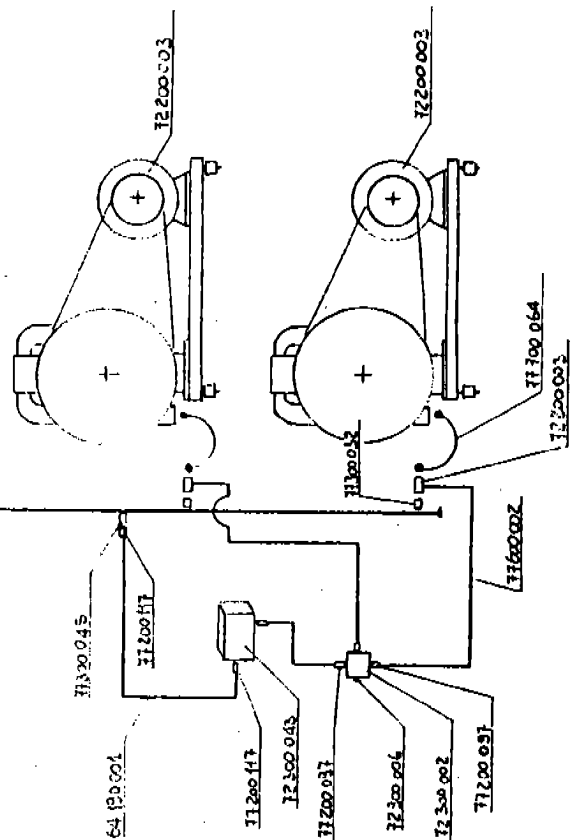
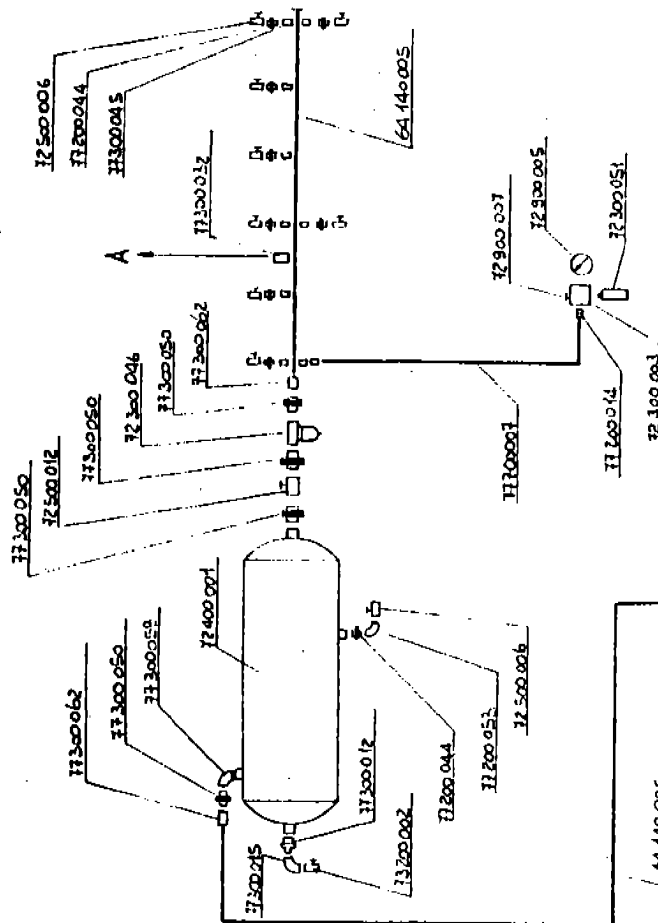


#### 16. CHECKING BEFORE SETTING RIDE AT WORK.

- Make sure that the electric system, and, in particular, the inner service lighting and the emergency lights work efficiently.
- Check pneumatic system and make sure that there is no compressed air loss and that the pressures indicated beside the trick air gauges are respected.
- Check efficiency of the smoke detectors.
- Make sure that emergency exits are properly adjusted: these exits are indicated by the sign " EXIT " and lead to exit stairways.
- Check extinguisher charge.
- Make sure that tag indicating advises to the public is properly exhibited outside the ride.



17. **PNEUMATIC SYSTEM DIAGRAM**



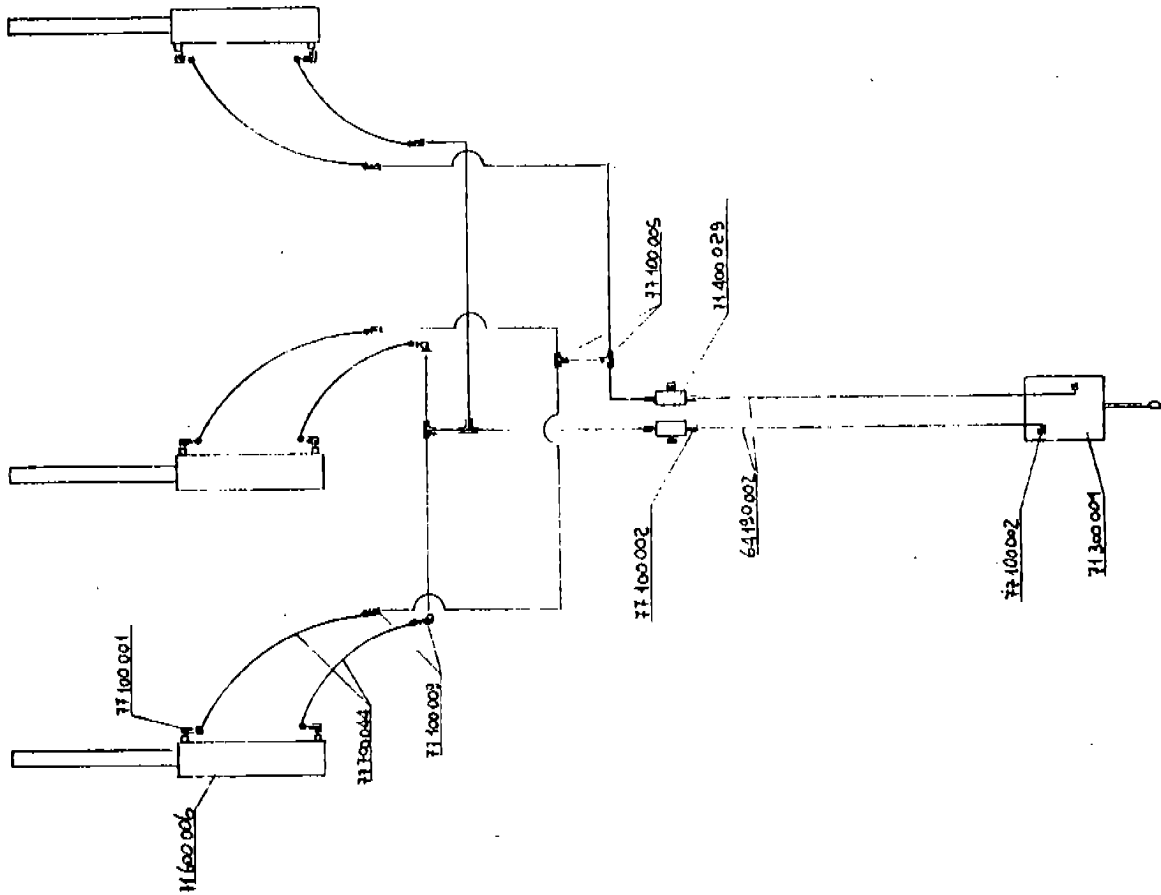
17:1

[illegible]

**18. HYDRAULIC SYSTEM DIAGRAM**

1

18-2



| Codice  | Pos.      | Pezzi | Denominazione | Materiale | Dimensioni | P. Kg. | Note |
|---|-----------|-------|---------------|-----------|------------|--------|------|
| N.°   | Revisione | Firma | Data          | N.°       | Revisione  | Firma  | Data |
| <b>OFFICINE BARBISAN</b><br>V. San. Fabbril, 18 Lovadina (TV)<br>Telefono (0422) 88 19 06 r.a.<br>Telefax (0422) 72 90 06<br>Telex 35 34 87 ART ENI |           |       |               |           |            |        |      |
| <b>Barbisan</b>   |           |       |               |           |            |        |      |
| <b>Scelta</b> Firma Data<br>27-06-1989  |           |       |               |           |            |        |      |
| <b>Cedice N.°</b><br>Pezzi per comm. N.°<br>Disegno N.°   |           |       |               |           |            |        |      |
| <b>1075-15</b>  |           |       |               |           |            |        |      |
| <b>Sostituisce il N.°</b><br><b>Emendazione del N.°</b>   |           |       |               |           |            |        |      |
| <b>Titolo</b> <b>OLEODINAMIC SYSTEM - BACK FLOORING</b>   |           |       |               |           |            |        |      |

## 19. MAINTENANCE.

- Check periodically conditions of the whole attraction.
- Lubrificate and grease sliding and static gears.
- Tighten properly all screws and bolts subject to heavy-duty.
- Check oil level in the hydraulic pump tank at least every six months.
- Check and top up lubricators of the pneumatic system very 10 days.
- Check and change oil of the compressor motors every 6 month.
- Intensity frequency of maintenance operations in heavy-duty working conditions of the ride, such as, dusty places, winter season, closeness to seaside areas, and everytime maintenance operations are deemed as necessary.

## 20. SPARE PARTS:

### HOW TO ORDER SPARE PARTS.

In order to receive a quick and proper service, all spare part orders should indicate following:

- Code of the attraction which is indicated on the tag which is stamped on the right side of trailer front.
- Code any type of the required spare part, or at least rough description of same.
- Quantity of required spare parts.

## ITALIAN GHOST DARK RIDE MANUAL

### OPERATION

1. Turn on the Main Power switch in the control room.
2. Turn on the tricks switch. Ride is now in full operation.
3. Operator is to be positioned by the control box. Use control box to launch cars into the ride at no less than 15 second intervals. Tell patrons to keep hands and feet inside of the cars at all time.

### SMOKE DETECTOR SYSTEM

The smoke detector must be tested daily. To conduct the test:

1. Remove 1 cap from any smoke detector head
2. Insert into the detector head the appropriate plastic key and wait a few seconds.

When the system activates, all of the following should happen:

1. Emergency lights activate
2. Exit signs activate
3. Outside siren activates
4. All tricks turn off
5. Tape that plays instructions inside of the ride activates.

After the test is completed, reset the alarm system.



## ITALIAN GHOST DARK RIDE MANUAL

### IN CASE ALARM SYSTEM ACTIVATES

1. Send word to the office that the alarm has gone off.
2. Assist patrons out of the fun house. Make sure all patrons are out of the fun house.
3. Use fire extinguishers on the ride to extinguish the fire if doing so will not endanger your safety.

### EMERGENCY PROCEDURES

#### 1. FIRE

In case the smoke alarm should sound, the operator is to immediately assist the patrons evacuate the fun house. He should also turn off the main power circuit breaker to the ride. The operator should also have someone notify the office or his supervisor as soon as possible. Once he is sure all patrons have been evacuated and the proper authorities notified, he may use the fire extinguisher on the ride to attempt to put out the fire if doing so would not risk his safety.

#### 2. CAR GETS STUCK INSIDE TRAILER

If a car should stop running while inside of the trailer, immediately turn off power to the main track and turn on work lights. Once power is off and lights are on, proceed to disabled car. Tell all patrons to remain seated while working on the car. If patrons must be taken off ride, one operator is to accompany each car load of people to the exit.

#### 3. OTHER UNUSUAL SITUATIONS

See Unusual Situations section of the Amusements of America Ride Operator Policies and Procedures Manual.