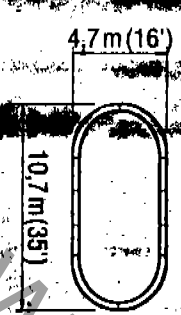
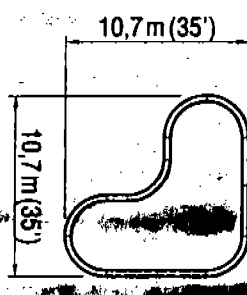
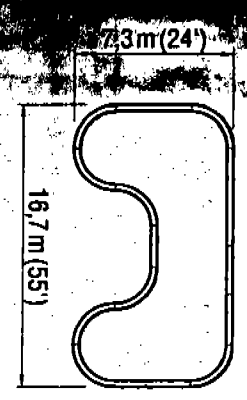
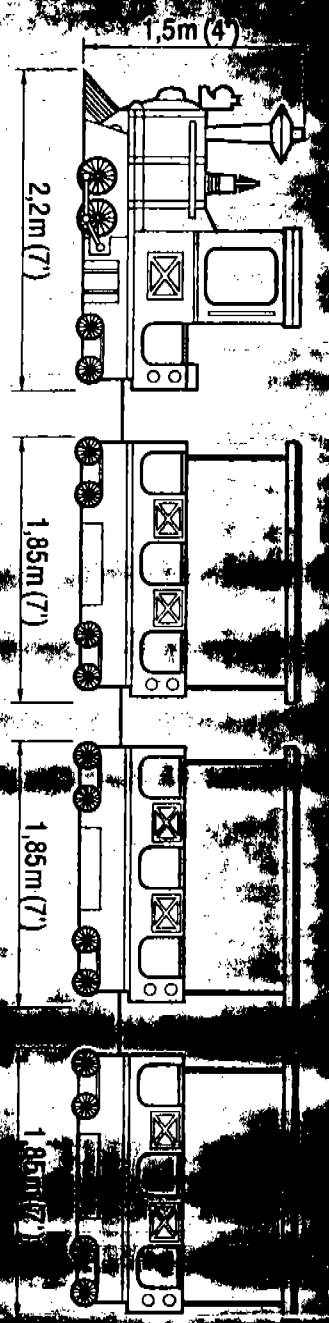


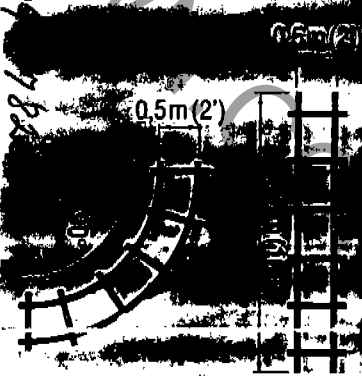
MISSISSIPPI TRAIN





FAX 39-0429 898287

TEL 39-0429 7828



Mod. 390 MISSISSIPPI TRAIN

Consolid base - Base size - Dimensions base 10.7 x 4.7 m (35 x 16')

Proprietà - Scelta originale - Plures locomotive 4 locomotive (per 2000 - 4 locomotive per 1000 - 2 locomotive per 500)

Capacità - Spazio aperto - Place a 300 010 a 300 (2000) 010 a 200 (1000) 010 a 100 (500)

Velocità - Versatile 0-100 km/h

Consumo - Locomotive 2000 kcal/h

Capacità - Spazio aperto - Place a 300 010 a 300 (2000) 010 a 200 (1000) 010 a 100 (500)

Capacità - Spazio aperto - Place a 300 010 a 300 (2000) 010 a 200 (1000) 010 a 100 (500)

Capacità - Spazio aperto - Place a 300 010 a 300 (2000) 010 a 200 (1000) 010 a 100 (500)

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Capacità - Spazio aperto - Place a 300 010 a 300 (2000) 010 a 200 (1000) 010 a 100 (500)



SIBF s.p.a.

Via Novembre, 20

53016 Casale di Spresosia

(Pudova) Italy

Tel. (39) (429) 847098 (r.a.)

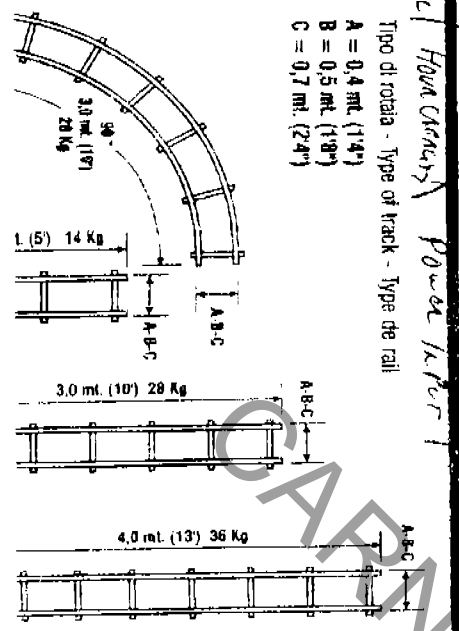
Fax (39) (429) 878287

ATLANTIC PACIFIC	685	1.300 / 1.700	Diesel - /5 HP - 2.300 rpm
NO BRAVO	280/3	330 / 550	2 Kw - 110/220 V - 50/60 Hz
MISSISSIPPI	390	480 / 750	2 Kw - 110/220 V - 50/60 Hz
REIGHT	280/30	480	2 Kw - 110/220 V - 50/60 Hz
LD WESTERN	391	480	2 Kw - 110/220 V - 50/60 Hz
ARTOON	391/B	380	2 Kw - 110/220 V - 50/60 Hz
IRCUS	385	340	2 Kw - 110/220 V - 50/60 Hz
LEPHANT	355	380	4 Kw - 110/220 V - 50/60 Hz
ATERPILLAR	384	380	2 Kw - 110/220 V - 50/60 Hz
ROLLEY	386	380	2 Kw - 110/220 V - 50/60 Hz
AM FRANCISCO	387	580	2 Kw - 110/220 V - 50/60 Hz
JRUMS	388	380	2 Kw - 110/220 V - 50/60 Hz
NOKA EXPRESS	389	300	2 Kw - 110/220 V - 50/60 Hz
CHRISTMAS	381	300	2 Kw - 110/220 V - 50/60 Hz

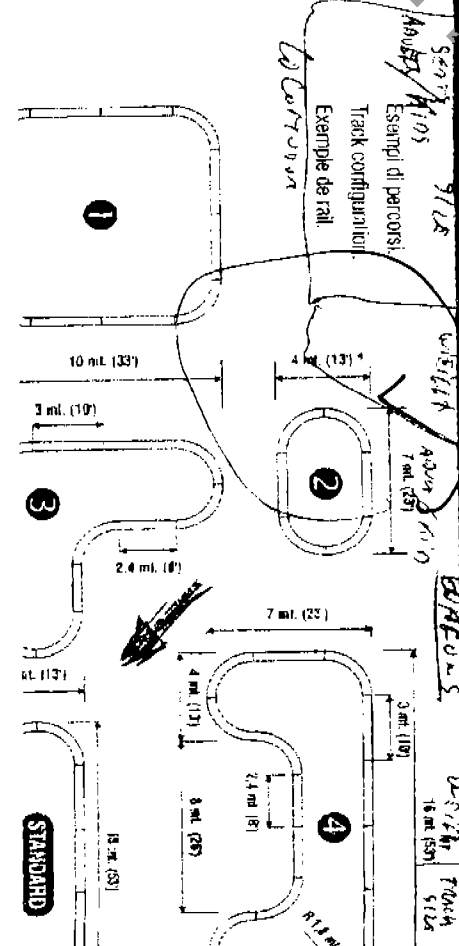
Tutti i treni hanno comando manuale e automatico e velocità regolabile.
 All trains are operated manually or automatically and speed is adjustable.
 Tous les trains sont opérés manuellement ou automatiquement et la vitesse est réglable.

1	1 (19'8" x 11'3" x 9'2")	0.300	10	24	1 (18'3" x 11'3" x 6'6")	0.300	8
2	2 (2'5" x 1'8" h mt. (8'2" x 5'5" x 5'11"))	530	4	5	2 (2'5" x 1'2" h mt. (8'2" x 3'7" x 6'6"))	250	C
2	2 (2'2" x 1'6" h mt. (7'3" x 3'3" x 5'3"))	220	6	9	1 (3'6" x 3'1" h mt. (8'3" x 2'1" x 6'2"))	140	B
4	2 (2'03" x 1'5" h mt. (6'6" x 3'3" x 4'11"))	220	4	4	1 (2'4" x 1'5" h mt. (4'8" x 3'3" x 4'11"))	110	B
1	1 (1'8" x 1'3" h mt. (5'11" x 2'7" x 4'3"))	130	6	6	1 (1'8" x 1'3" h mt. (5'11" x 2'9" x 5'3"))	95	A
4	1 (1'8" x 1'05" h mt. (5'11" x 2'7" x 3'3"))	110	4	4	1 (1'10" x 86" x 1'4" h mt. (3'7" x 2'9" x 4'7"))	70	A
1	1 (1'8" x 1'07" x 1'85 h mt. (5'11" x 3'5" x 6'1"))	160	2	4	1 (1'87" x 1'07" x 2 h mt. (6'2" x 3'6" x 6'6"))	120	B
4	2 (2'6" x 1'1 h mt. (8'6" x 3'3" x 3'3"))	128	4	4	2 (2'6" x 1'1 h mt. (8'6" x 3'3" x 3'3"))	150	C
4	1 (2'40" x 1'05 h mt. (3'11" x 2'11" x 3'11"))	85	4	4	1 (0'50" x 0'90" x 0'95 h mt. (3'5" x 2'11" x 3'11"))	82	A
4	1 (1'40" x 8" x 2 h mt. (4'7" x 2'7" x 3'11"))	100	4	4	1 (1'40" x 8" x 1'2 h mt. (4'7" x 2'7" x 3'11"))	80	A
3	1 (1'30" x 8" x 1'9 h mt. (4'3" x 2'7" x 6'3"))	150	3	6	1 (1'30" x 8" x 1'9 h mt. (4'7" x 2'7" x 6'3"))	130	A
2	1 (1'8" x 1'08" x 1'45 h mt. (5'11" x 3'7" x 4'9"))	155	2	4	1 (1'4" x 1'08" x 1'15 h mt. (4'7" x 3'7" x 3'9"))	110	B
4	1 (1'8" x 1'25 h mt. (5'11" x 4'3" x 8'2"))	110	2	4	1 (1'3" x 1'30" x 0'85 h mt. (4'3" x 4'3" x 2'9"))	80	A
2	1 (1'0" x 1'65 h mt. (3'3" x 2'11" x 5'5"))	150	2	4	2 (2'0" x 1'1" x 1'6 h mt. (6'7" x 3'3" x 6'3"))	120	B

Tipo di rotaia - Type of track - Type de rail
 A = 0,4 mt. (1'4")
 B = 0,5 mt. (1'8")
 C = 0,7 mt. (2'4")

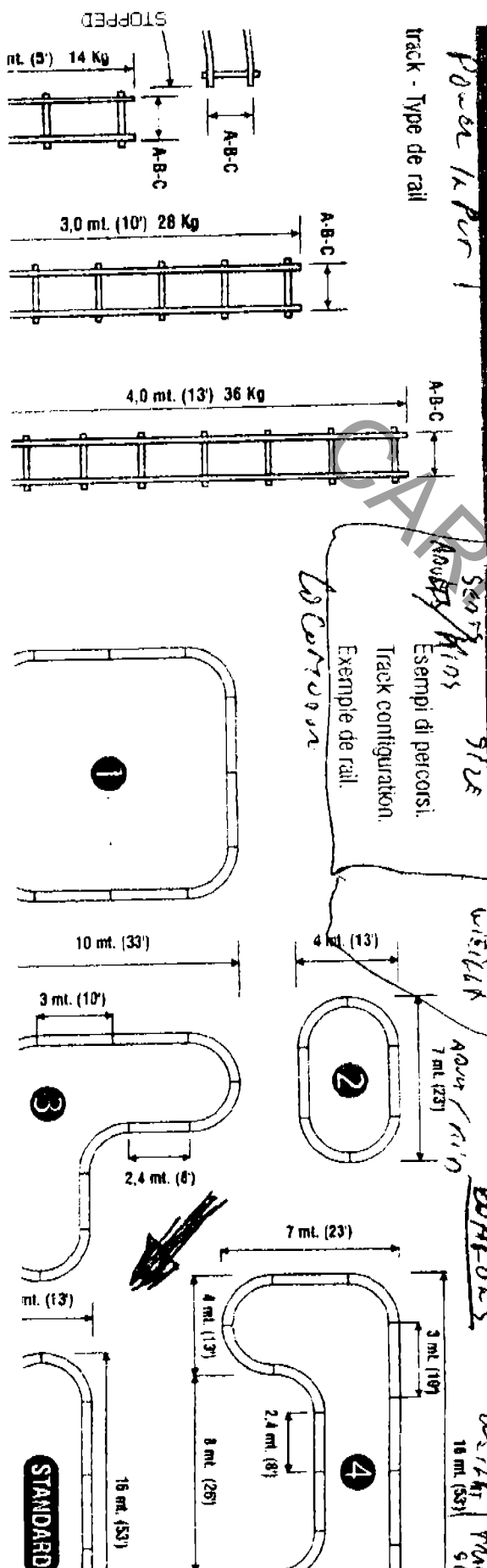


Scenari / Scenarios / Scénarios
 Esempi di percorsi / Track configurations / Exemples de rails



STANDARD

Model	Power	Frequency	Control	Dimensions (mm)	Weight (kg)	Speed (km/h)	Length (m)	Width (m)	Height (m)	Gauge
W-110/220 V - 50/60 Hz	14 Kg	50/60 Hz	STOPPED	1900x411x302	28 Kg	100	10	4.7	110	1000
W-110/220 V - 50/60 Hz	28 Kg	50/60 Hz	3.0 mt. (10')	2500x411x302	36 Kg	150	15	4.7	110	1000
W-110/220 V - 50/60 Hz	36 Kg	50/60 Hz	4.0 mt. (13')	2500x411x302	36 Kg	150	15	4.7	110	1000
W-110/220 V - 50/60 Hz	2.03x1x1.5 h mt.	50/60 Hz	2	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.8x0.8x1.3 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.8x0.8x1.05 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.8x1.07x1.35 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	2.6x1x1 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.2x0.9x0.95 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.4x0.8x1.2 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.9x0.8x1.9 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.8x1.08x1.45 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.8x1x2.5 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.8x1.08x1.15 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.05x0.9x0.95 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.4x0.8x1.2 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.9x0.8x1.9 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	1.4x1.08x1.15 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000
W-110/220 V - 50/60 Hz	2.05x1x1.6 h mt.	50/60 Hz	4	220	6	9	140	110	110	1000





ISTRUZIONI DI USO E MANUTENZIONE
INSTRUCTIONS FOR USE AND MAINTENANCE
INSTRUCTIONS DE USAGE ET ENTRETIEN

MISSISSIPPI



GENERAL TABLE OF CONTENTS

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NAME OF RIDE (Nome attrazione)	MISSISSIPPI TRAIN	
SERIAL NUMBER (Numero di serie)	391.264	
MANUFACT. YEAR (Anno di costruzione)	2000	
BASE DIMENSIONS (Dimensioni di base)	10,5 X 10,5 MT.	
NR. OF CARS (Nr. Vetture)	04	
NR. OF SEATS (Nr. Posti)	30	
TOT. WEIGHT (EMPTY) (Peso tot. a vuoto)	850Kg.	
TOT. WEIGHT (LOADED) (Peso tot. a pieno carico)	2300Kg.	
WEIGHT OF EACH PASSENGERS (Peso max passeggero)	50 /75 Kg.	
MOTIVE POWER (Forza motrice)	2KW.	
LIGHTING (Illuminazione)	1KW.	
OPERATING TEMPERATURE (Temp. Funzionamento)	/	
VOLTAGE (Voltaggio)	3 PHASE	SINGLE PHASE 220V
Hz	50 X	60
STANDARDS DIN (Normative DIN)	DIN 1055 - DIN 4112 - DIN 4114 - DIN 15018 - DIN 17100 - DIN 18800	
INSPECTED (Ispzionato il)	GIT/ '00	
NAME OF CUSTOMER (Nome cliente)	/	
ORDER NR. (Numero ordine)	TR 328	
MAIN COMPONENT LIST (Lista componenti principali)	MOTOR/CROWN GEAR/PINION	
PUMP MOTOR (Motore pompa)	/	
ROTATION MOTOR (Motore rotazione)	500W 1400RPM 48VCC	
GEAR BOX (Riduttore)	/	
CONTROL BOARD (Quadro comandi)	REF. "34"	
MODEL (Modello)	ON TRAILER (Su carro) X	PARK (Parco fisso)
ELECTRONIC CONTROLLER (Scheda elettronica)	MODEL /	
THIS RIDE HAS BEEN DESIGNED AND CONSTRUCTED FOR PASSENGERS AGED		
(Questa giostra è stata disegnata e costruita per passeggeri di età)		
<i>3 or more</i>		
YEARS (Anni)		
WHEN ORDERING SPARE PARTS PLUS ALWAYS REFER TO OUR ORDER NR.		TR 328
NOTE: (Nell'ordinare pezzi di ricambio fare sempre riferimento al ns. numero ordine)		

2.0 VERY IMPORTANT

Because safety rules can be different in different countries, operation of this ride must conform to safety rules in force in the country where this ride is operated and owner operator must provide at his own cost for all modification necessary to conform with said local safety rules including but not limited to fencing, gates, safety belts, operation stand, special wiring, other safety features as it may be required by local safety inspector. This ride has been sold as it is and how inspected by buyer who knows that some changes could be necessary. Any change relating to parts that can affect structural integrity must be approved by manufacturer. Operator must be a skilled operator with full knowledge of ride operation, emergency procedures and any other information necessary for safe operation of this ride

3.0 INTRODUCTION

This operation and maintenance manual has been written to allow our customers to use the attraction in the best way.

S.B.F. s.r.l. recommends to read it very carefully.

This manual has several safety rules related to use and maintenance of the ride:

These rules are obligatory for owners and operators of the attraction who must not disregard them for any reason.

Note that these rules do not substitute those disposed by the public authorities and the duty to use the ride carefully and properly, either.

S.B.F. s.r.l. is not responsible for the damages caused by the non-observance of these safety rules and it reserves the right to act both against the owner and the operator and to notify the competent authorities about any abuse.

4.0 WARNINGS FOR THE USE OF THIS MANUAL

Before starting any operation concerning use, maintenance or assembling, read carefully the notes hereafter.

For any question, please contact us directly.

S.B.F. s.r.l. reserves the right to inform their customers about other necessary details for better use of the attraction. Such information, as modifications, updates, additions, must be considered as integral parts of this manual.

The content of this manual belongs exclusively to S.B.F. s.r.l. The technical data are reserved to:

- customers, owners and operators;
- personnel in charge;
- technical inspectors acting under public authority's order.

Any other publication is forbidden, except with S.B.F. s.r.l. written permission which reserves the right to safeguard its interests and rights.

4.1 VISUAL PLATES

The attraction is delivered with metal plates and self-sticking labels reporting important indications.

Such indications do not substitute the rules indicated in this manual and can not be considered as sole rules to observe. They are an important help for the customers' best use of the ride.

Do not remove or damage these plates, but keep them always readable.

If their replacement is necessary, metal plates and self-sticking labels should be required to S.B.F. s.r.l., indicating their code number.

Should it any updatings, modifications, etc., be necessary S.B.F. s.r.l. reserves the right to inform their customers properly and to introduce such modifications aiming at a better use of the ride.

4.2 GENERAL RULES CONCERNING USE OF THIS RIDE

This attraction has been planned to please create fun and amuse people. Follow these fundamental rules to obtain the highest safety conditions for the public.

Follow strictly the instructions contained in this manual and others that S.B.F. s.r.l. reserves to supply.

Use the attraction for the purpose it has been planned and submit it to an accurate maintenance.

Operate according to the national and local authorities' laws and regulations.

The personnel must be competent and accurately trained.

It is forbidden to make additions, modifications or tamperings.

Reparations must be done only by S.B.F. s.r.l. authorised personnel and using only original spare parts.

If the ride has not a good and safe operation, the customer must stop immediately the attraction, until the necessary conditions for a good use have been re-established.

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4.3 PASSENGERS AND THEIR BEHAVIOUR

These dispositions, as all the others regarding the passengers inside this manual, are valid also for the service personnel, when they occupy places usually reserved to the passengers.

Because of the ride characteristics, it must be forbidden to: RIDE

- children being visibly upset;
 - people visibly drunk or under the effect of drugs;
 - pregnant women;
 - people suffering of heart diseases, backbone diseases or physically unhealthy;
 - people with physical handicaps, who cannot sit properly inside the vehicle;
- Adults with children between 3-6 years old, must sit near them and survey their correct behaviour;
- It is forbidden to smoke and to carry: animals, umbrellas, sticks, bulky and sharpened objects;
- Behave properly without causing throngs, leaning out, raising up from the seats, eluding safety devices, etc.;
- Since some of the regulations are directed to children, messages through loudspeaker and signals should be easily understandable.
- For foreign people it would be useful to put multilingual signals.

4.4 WEATHER CONDITIONS LIMITING THE FUNCTIONING OF THE RIDE

The attraction has not been planned for the snow charge, therefore the snow must be removed.

The must always be removed attraction must not operate under the following weather conditions:

- rain, snow, hail
- thunderstorm
- with wind speed over 20 m/s

After heavy raining and heavy snowing the ground condition can vary: check very carefully the attraction levelling and the wooden supports after these phenomena.

4.5 BEFORE OPERATING

- All daily checkings must be carried out very carefully and particularly:
- check the perfect levelling of the ride and the condition of the wooden support, a probable collapse must be immediately corrected with pepper devices.
- check the general conditions of the attraction, the presence and the proper fastening of all foreseen elements of support and tightening.
- check the proper fastening of the motorization elements (motors, reducers, wheels, pneumatic, cylinders) of the moving parts (wheel support, vehicles support, etc.)
- check the proper electrical connection to ground of the attraction.
- check the efficiency of the differential devices of the general switch, using the proper test buttons.
- check the attraction when it is empty, checking the functionality in all conditions
- check the proper working of the emergency stop.

4.6 DURING THE OPERATION: SPECIAL NOTES

- the operator and the service personnel must keep the complete control of the attraction, paying particular attention to the passengers' and public's behaviour.
- The public must be outside the loading and unloading passengers area and it must be delimited and properly marked.
- if people go inside this area or they behave dangerously stop immediately the attraction.
- the operator and the service personnel must be ready to face any emergency situation that could happen, knowing all procedures and having at their disposal the necessary instruments to grant the public and passengers safety and to grant them a swift and an ordered exit.

4.7 PASSENGERS UNLOADING

- the passengers' unloading must be done in the expected area and when the attraction is absolutely motionless.
- the personnel service of this area must be sure that the passengers leave it in a short time: then the operator will be informed that this area is free and so restore the loading operations.
- the passengers can get down from the vehicles only when the attraction has come to a complete stop.

4.8 PASSENGERS' LOADING AND UNLOADING: PARTICULAR WARNINGS

- The operation of passengers' loading and unloading must be effected in the proper area and when the attraction is motionless.
- the public must be kept out of the loading and unloading area and the public's inflow in this area must be in order.
 - if tumultuous throng makes fear the public's rush in this area, all operations must be immediately interrupted.
 - the service personnel must check that the loading and unloading area is inaccessible to the passengers only when the attraction is completely motionless.
 - inform the passengers properly with loud speakers and announcements that they must not lean out of the vehicles, get up or, however, behave dangerously.
 - be sure that the passengers are properly sat inside the vehicles and that the safety gates of the vehicles are properly closed and blocked.
 - check that the passengers are equally distributed on the vehicles to avoid unbalances and irregular movements



5.0 CONDITIONS OF WARRANTY

The warranty conditions are indicated in the contract of purchase, and the validity depends on the complete observance of the procedures and warnings stated in this manual.

Any type of warranty or liability shall become void in the event of non-compliant use, or damages as a result of negligence or modifications to the machine without the written authorisation of **SBF srl**.

CAUTION: Upon delivery to the buyer, make sure that the attraction is in perfect condition and that none of the parts and/or units required for its proper operation are missing.

N.B. : In the event the attraction is found to be damaged, or there are missing parts, advise **S.B.F. srl** immediately.

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7.0 INSTALLATION

POSITIONING

The attraction must be placed on flat, solid ground, ensuring the base is duly supported

<1> the electrical connections, controls and emergency push-button must be easily accessible, and access to them free of obstacles.

WIRING

First of all, ensure that the line voltage and frequency correspond to those of the attraction.

In addition, make sure that the electric power supply is greater than the attraction's maximum power absorption.

The ride must be connected to an efficient earthing ground.

<1> only skilled personnel should be granted access to the panelboard; disconnect the power supply before opening the electric box door.

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6 0 OPERATION

ATTENTION

To set the attraction up:

- lift up the general switch (1)
- push the start button (2)

To start the ride push the green start button.

To stop the ride in any point of the truck push the red stop button (3)

In case of immediate danger, push the emergency button (4) which stops immediately the attraction.

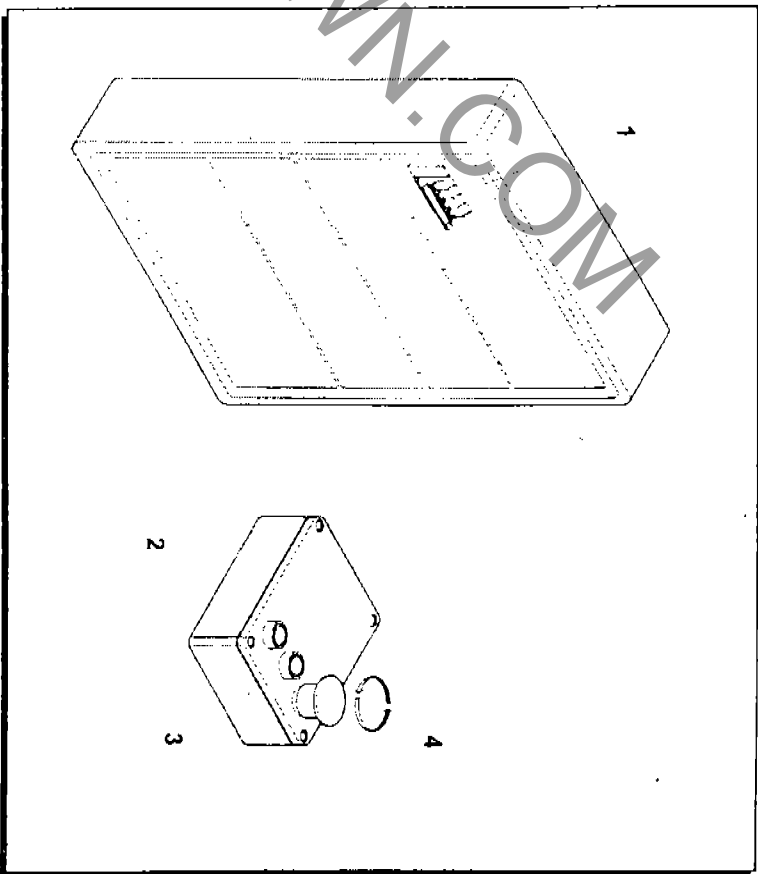
To re-start operation, turn the same emergency button anticlockwise and push start button.

In case of anomalous functioning pls. check:

- the control fuse
- the power fuse

In order to grant a good operation of the attraction, on control panel you can find:

-when closing the ride, lower the switches and close carefully the control panel.



9.0 STEEL STRUCTURE

All steel structures have been planned, calculated and built to carry out their task for a long time and without problems, but some fundamental rules are to be observed and respected.

9.1 OPERATION AND MAINTENANCE

- do not damage these structures with an improper use, submitting them to not expected loads, making wrong operations of assembling, dismantling and transport.
- do not change the structures functionality, making weldings of different kinds, adding welded elements even of little dimensions, making holes, even if little ones, structural cuttings and whatever can endanger its integrity.
- submit the structure to an accurate maintenance, avoiding through regular re-painting the rust formation.
- be sure that there is no backwaters keeping always sealed the openings, and free from obstruction the draining holes.

9.2 BREAKINGS

- The formation of tiny cracks, which under variable loads during the time become bigger causing serious damages, is a rare event if there is a correct planning and proper construction.
- however, operative conditions of the attraction, different from those expected, just as other different reasons, can cause breakings.
- the periodical visual check must be extremely efficient to find out probable breakings, to avoid the destruction of the structure.
- check carefully the structure, particularly where there are weldings, junctures, linkings, sections replacements, and general discontinuities
- (beads, holes, attacks, gussets, etc.); in these places it is easier the formation of cracks and consequently of breakings.
- an accurate visual check, carried out periodically as suggested in the general checks table, permits to find out the cracks or breakings before the structure is seriously and definitely compromised.
- be careful to the paint or galvanizing conditions: a paint cleaving, above all if there is also a rust escape, generally means a cleaving into the underlying material.
- if there is any problem in the visual check (and the suspect of possible cracks remains), contact specialised companies in not destructive controls and S.B.F. srl to make more detailed checks.
- if there are cracks or breakings in progress, stop immediately all operations and contact S.B.F. srl immediately.

9.3 CORROSION

on open steel structures a periodical repaint is an efficacious prevention against corrosion.

more difficult is the prevention and the control of the corrosion in the close structures (box structures, tubular elements, etc.) especially if the elements are of little thickness.

In this case, it is possible to check, in particular conditions, relevant phenomena of corrosion, which after some year could reduce the thickness and endanger seriously the exercise of the structure.

In all parts of the steel structure susceptible of such danger, make no more than three years after its construction, periodical controls, every year, or if there are corrosive phenomena, every six months.

Such controls must be effected by specialized companies in not destructive controls, having the personnel and the means to make thickness measurements on closed structures.

particularly, submit to check the following parts:

- in the tubular structures, underputting them to a general control that has to be particularly careful that, for their position or structure, present often backwaters;

- ship's frames, generally made up by a small thickness and submitted to great backwaters; if the areas to check are covered by fibreglass for the frame tightening to the metallic structure, proceed to a small quantity of the fibreglass to make the measurements of the thickness and so, with the help of qualified personnel, to restore the connection;

- the structures where it is fixed frame elements, coverings, decorative elements or lightings;

- the structures constantly undergrounded or, however, difficult to reach.

if there is a reduction of the thickness more of the 15% than the initial one, stop immediately all operations and contact S.B.F. s.r.l.

9.4 CONNECTION THROUGH BOLTS AND PLUGS

Connections through bolts and plugs for rides are:

- ♦ connections where, once the connection is effected, there is no relative movement among parts;
- ♦ connections where there is a relative occasional movement;
- ♦ connection where the relative movement is frequent.

In the last two cases, there is the interposition among bolts and piston bearings or antifriction ball bearings place.

9.5 OPERATION AND MAINTENANCE

do not damage such connections improperly, submitting them to unexpected loads, making wrong operations of assembling, dismantling and transport.

after the connection functionality do not make any kind of weldings, changing or making inefficient the safety mechanisms of connection, heating the connection elements, making holes, structural cuttings or whatever could compromise its integrity.

Submit the connection to maintenance, in order to avoid bindings and corrosions.

9.6 CHECKINGS

(Check all plugs and dowels connections according to the previous chapters and the general checks table.

WEARING, DEFORMATIONS, CORROSION

These connections, with or without relative movements, are usually subjected to wearing and seldom to deformations and corrosive phenomena.

Wearings, as for the other mentioned phenomena, could occur on the dowel, on the holes or on the interplaced bearings, and if limited within certain limits, do not compromise the good operation of connection.

To determine the maximum admissible play levels for these phenomena is difficult and not practical, for the great number of connection on the attraction.

This is a general information, leaving more details only to cases considered indispensable.

Usually, the control connection must assure that:

- the play between dowels and plugs has not become too excessive; where the values of the maximum admissible play are not indicated, it is meant a play considered anomalous by competent personnel, who considers what kind of connection, its dimensions and its functioning.
- the dowel has alterations of form or dimension: ovalisations, upsettings, steps, seizings, pittings and other corrosive attacks.
- the hole, or bearing, does not present analogous defects on the inner surface.

CRACKS

Check carefully the connection elements (dowels), to discover probable breakings, usually caused by fatigue.

This is a little defect which can become bigger during the time till the complete destruction of the element.

These fatigue cracks have generally their origin near discontinuities such as diameter changes, slots for seeger rings or splines, slots for mechanisms which have to prevent the rotation and the escape of the dowels and others. Check these parts after having taken away filthiness, grease.

Check very carefully dowel, accurately ungreased and washed, in the already mentioned zones: if there is any doubt contact S.B.F. srl for more detailed controls.

if there is any doubt of the general condition of dowels and plugs connection, on which can depend the attraction safety, stop immediately all operations and contact S.B.F. srl.

9.7 STEEL NUTS AND BOLTS

Check very carefully all screw connections, both those made in the factory and not dismantling (if not for maintenance and reparation) and those to restore at every ride assembling, because they are extremely important for safety and reliability of the ride.

9.8 RESISTANCE CLASSES

Usually are used commercial screws at high resistance of 8.8 and 10.9 classes (UNI 3740-DIN ISO 898).

Screws class nr. 12.9 are not in use, because, in spite of their high resistance, can get fragile breakings.

The resistance class of screws and nuts is easily identifiable, because marked over their heads.

In particular cases, special screws can be used, built exclusively for S.B.F. s.r.l. in small stock: stamping of resistance class can be missed, but it is indicated in this manual and next to screws.

IN REPLACEMENT CASE:

use screws and nuts of the same resistance of the original ones; as there is no correspondence between the resistance class DIN or UNI and that of other rules (sae, astm, etc.), it is absolutely forbidden to use different nuts and bolts than those indicated;

use class of resistance nuts compatible to the screws class of resistance (to which are coupled);

order the special screws directly to S. B. F. s.r.l.;

when expected, use only inserts for nuts and bolts of high resistance (UNI 5714-DIN 6916).

9.9 TIGHTENING

the proper screws tightening is fundamental for a safe operation of the connection.

a strong tightening (extra-tightening) can produce permanent plastic deformations compromising the connections toughness.

on the other hand, a loose tightening (under-tightening) can produce:

- ① subsidences for fatigue;
- ② loosening;
- ③ slippings off of connected parts and bolt cutting.

for a correct screw tightening or for a periodic check, use exclusively a dynamometric key of proper dimensions, after having carefully read instructions for use included with the same key.

turn the nut for a correct bolts tightening.

in the following table are listed the values of the tightening moments for wide pitch external threads ISO type UNI 5931- DIN 912, UNI 5737- DIN 931, UNI 5739- DIN 933.

These values are taken by the most trustworthy literature and they are valid for connection effected in the factory not submitted to repeated assemblings and dismantlings.

If there are connections submitted to repeated assemblings and dismantlings, in order not to damage the screws, it is advisable to apply a tightening moment reduced of 10%.

FREQUENT ASSEMBLINGS AND SELDOM ASSEMBLINGS AND DISMANTLINGS

CLASS → THREAD ↓	8 8		10 9		CLASS → THREAD ↓	8 8		10 9	
	Nm	Nm	Nm	Nm		Nm	Nm	Nm	Nm
M8	22	32	M8	25	35				
M10	44	62	M10	48	69				
M12	76	110	M12	84	120				
M14	120	170	M14	130	190				
M16	220	315	M16	245	350				
M18	265	380	M18	295	420				
M20	380	540	M20	420	600				
M22	565	810	M22	630	900				
M24	690	990	M24	770	1100				
M27	1040	1490	M27	1160	1650				
M30	1390	1980	M30	1540	2200				
M33	1730	2480	M33	1930	2750				
M36	2390	3420	M36	2660	3800				

Take care of not painted parts and exposed to atmospheric phenomena (es. dowels, plugs, screws, etc.) using one of the following protective greases:

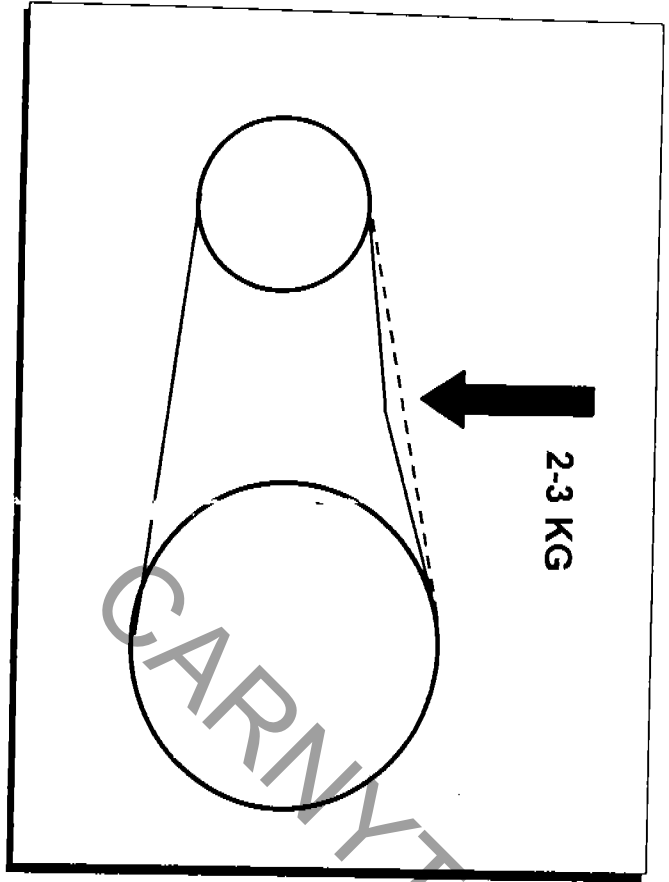
GREASE		TYPE:
AGIP		GR PV2
MACH - BP		GR 2
CHEVRON		CUP GR2
ESSO		ESTAN 2
FINA		MERKAN 2
GULF		CST 2
MOBIL		MOBILGREASE A.A.N.2.
SHELL		UNEDO GR2

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10.0 ORDINARY MAINTENANCE

10.1 TRANSMISSION CHAIN

Check monthly the tension of the transmission chain of the vehicle: the oscillation allowed is 2/3 millimetre ca. If the oscillation is higher, put it in tension, loosening the screws and moving the reducer in order to obtain the expected result. Check the proper ranging between pinion of the reducer and the crow, then click them with nuts. Grease weekly the chain with grease.



10.2 ELECTRIC SYSTEM

1) MOTOR BRUSHES

Check every 15 days the wearing conditions of brushes of the motor of the locomotive. To reach this brush, take away the carrier.

2) TRACK BRUSHES

Check monthly the wearing conditions of the feeding brush. If necessary, replace it.

3) GROUND CONNECTIONS

Once made a proper ground connection during the installation of the attraction, check daily its conditions.

N.B.: such connecting and checking must be done by competent personnel.

4) CONTROLS

Check daily the proper operation of start, stop and emergency buttons.

10.3 GUIDE ROLLS

Check the wearing conditions of the guide rollers, if necessary replace them.

10.4 CARRIAGES WHEELS

Check the wearing conditions of the 4 wheels, if necessary replace them.

10.5 GENERAL MAINTENANCE

Check daily:

- 1) the ride condition;
- 2) the proper tightening of nuts and bolts of the ride;
- 3) the condition of electrical connections.

11.0 PERIODS OF INACTIVITY

If the attraction is not in operation for extended periods, store it in a safe, sheltered place.

Follow the procedure below in order to avoid oxidation, corrosion or any other form of deterioration:

- ◆ disconnect the wiring so that the attraction can not be operated.
- ◆ clean thoroughly and, if necessary, touch-up the paint work so as to avoid rust forming, and replace any damaged parts.
- ◆ smear grease on the ring bevel gear and pinion gears.
- ◆ cover the attraction with polyester film in order to protect it from dust.

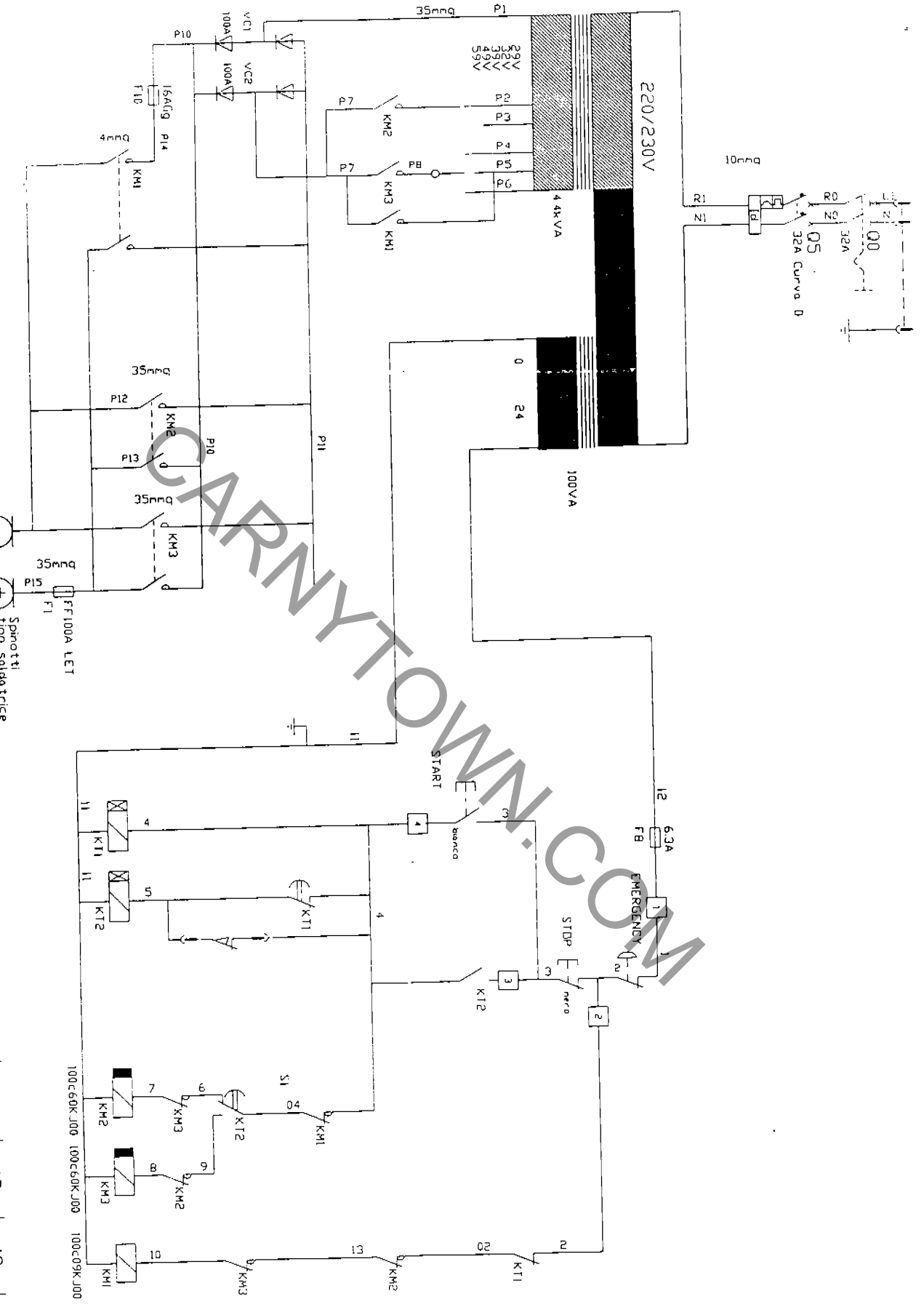
12.0 RESTARTING THE ATTRACTION

Before restarting the attraction after it has not been in operation for an extended period, proceed as follows:

- ◆ remove the temporary covering used to protect against dust.
- ◆ connect the attraction up to the mains.
- ◆ check that the controls on the panel are all working properly.
- ◆ perform a test ride without any passengers so that general working can be checked

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

TR5
4 SKVA



NUMBER 391.264

MISSISSIPPI TRAIN

TR 328

CLIENTE/CUSTOMER

Siprotti
tipo solidatrice

TRAIN	TIPO/TYPE	N° DIS/N° SHEET	CDMESSA/ORDER	COMINIT/INT ORDER	N° PAG/N° PAGE
MISSISSIPPI TRAIN	TR 328	9000656			01
PARTE/PART	DATA/DATE	DI SEGNA TO/DE SIGNER	VISTO/CHECK	COMPOS TO/COM POUND	
POWER DIAGRAM		N.T.I./P.P.I			

100C60KJ00 100C60KJ00 100C09KJ00