

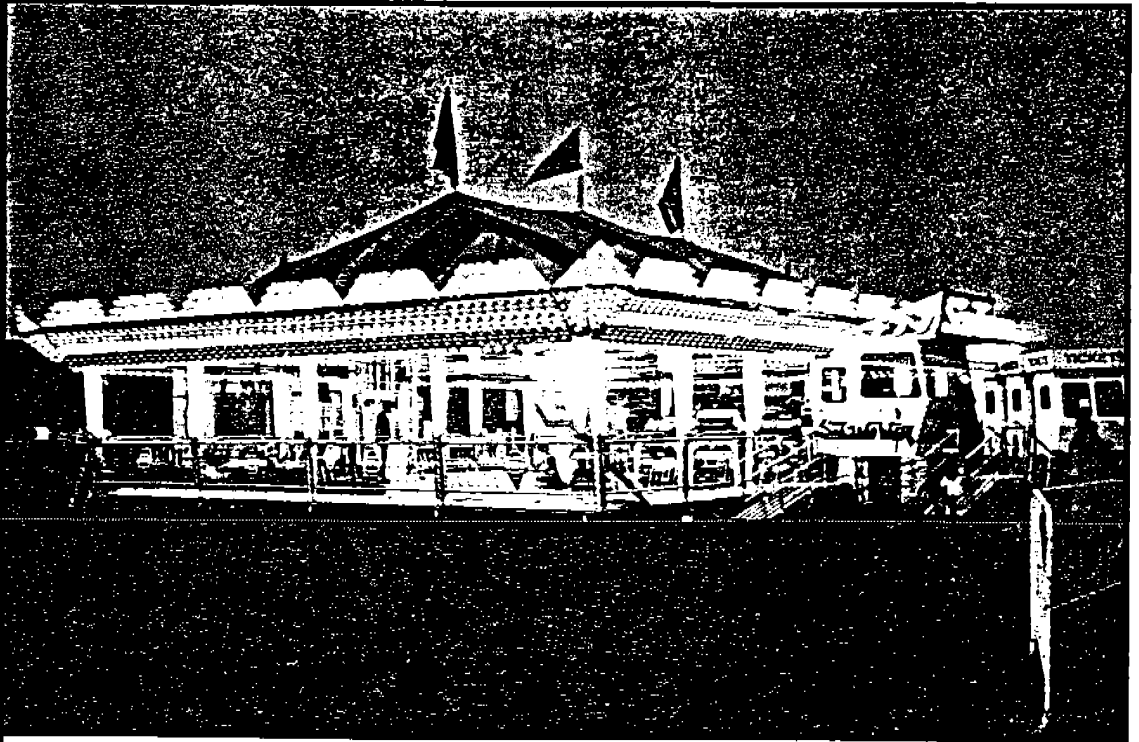
★ MAJESTIC ★

U.S.A.
\$25⁰⁰

OPERATOR MANUAL

MFG: MAJESTIC RIDES MFG.
NAME: SCOOTERS *Tm-1800*
TYPE: NON-KIDDIE

T. M. 1800 EURO
PORTABLE
SCOOTER BUILDING



SCOOTER[®]

How To Order

- PHONE -

1-216-457-2447

1-216-457-7280

FAX 1-216-457-7490

Knowledgeable Staff

If you are unsure of your needs, call us. We are the Bumper Car Experts!

Same Day Shipment

We strive to ship orders we receive the same day, whenever possible.
This is another example of our commitment of service to you.

In Stock, On The Shelf

We make it a priority to maintain a high level of replacement car parts for our customers.

Fast Delivery

We offer UPS, Federal Express, Purolator, Commercial Carrier, etc.
If you have an address, we will get it to you!

- For Fast And Efficient Service -

Having your Parts Book with you when you are placing your order is extremely helpful.
Call us at 216-457-2447 or 216-457-7280.

After business hours you can call your order on our answering service, or
FAX us your order at 216-457-7490.

What We Need To Know When You Call:

- Your Company Name
- Your Name
- Your Phone Number
- Your Complete Ship-To Address (not your P.O. Box)
- Your Mailing Address if different from above
- Your Preferred Method of Shipment
(eg. UPS next day, UPS ground, FED, Comm. Carrier)
- Your Style of Car, and whether Floor Pick-Up or Standard

TO THE OWNER AND OPERATOR

This manual contains information concerning the operation, maintenance and safety of your new MAJESTIC SCOOTER building. It should be read carefully before attempting to operate your scooter. You will find many helpful pointers which will assist you in obtaining the performance for which it was designed.

MAJESTIC INC.

Majestic Inc. makes note of warranty or claims arising from the use of this manual and the owner-operator assumes complete responsibility for any decisions made or actions taken based on information obtained from using this manual.

BE CAREFUL

The notes appearing in boxes throughout this manual are used whenever personal safety is involved. Take time to be careful for you and the safety of your patrons.

IMPROVEMENTS

Majestic Inc. is continually striving to improve its products and reserves the right to make improvements when it becomes practical and feasible to do so, without incurring any obligations or responsibility to make these improvements to Scooters sold previously.

TABLE OF CONTENTS



	Page
WARRANTY	1
SAFETY INFORMATION	3
PRECAUTIONARY MEASURES	4
ASSEMBLY	
SET UP PROCEDURE	5
PURLINGS AND DECKS	5
BUMPER RAILS	6
POSTS	6
CATWALKS AND RAFTERS	7
CEILING PANELS, SCENERY, CANVAS	8
CARS	9
INSPECTION	9
ELECTRICAL SERVICE FOR TM 1800 EURO SCOOTER BUILDING	9
PERIODIC SERVICE	10
INFORMATION AND TROUBLESHOOTING GUIDE FOR HYDRAULIC UNITS AND CYLINDERS	11-17
MAJESTIC RECTIFIER	17
MAINTENANCE INSTRUCTION - BUMPER CARS	18
TROUBLE CHART	19
DAILY INSPECTION SCHEDULE	20
CUSTOMER COMMENTS	21

SAFETY INFORMATION



Please Take Time To Read All Safety Information

Unsafe operating practices and improper use of this equipment on the part of the operator can result in injuries. Observe the following safety precautions.

1. Proper blocking for trailer and purlings is essential for safe operation. **NOTE:** when setting on soft or sandy ground always use a plywood base for blocking. We recommend a 2 $\frac{1}{4}$ " x 1'-0" x 2'-0" plywood base for trailer and $\frac{3}{4}$ " x 1'-0" x 1'-0" for purling blocking. Always block purlings where the letter B is noted on purling.
2. A. When raising or lowering decks, never have anyone stand between purlings.
B. **NOTE:** To avoid contact with ceiling panel rollers when raising or lowering decks, position winch cables in center of drive.
3. Never unhook tractor from ride until all air is out of air bags.
4. When attaching or removing tractor from trailer never fully extend hydraulic cylinders. Always use mechanical support stands for extended periods. After support stands are in place, retract hydraulic cylinder. Support pad approximately 1" above bottom of stand base.
5. Overheating 12 volt motors will affect the safe operation of the motors.
A. Hydraulic 12 volt motor maximum recommended continuous use is 10 minutes.
B. Winch 12 volt motor maximum recommended continuous use is 5 minutes.
C. Always connect ground cable in control house before raising or lowering deck.
D. A fully charged battery will ensure proper amperage to 12 volt motors.
6. Proper size safety keys and pins are important, and must be installed in following before operating ride.
A. Post Caps
B. Catwalks
C. Rafter
D. Scenery
E. Purlings
F. Ramps
G. Racking
H. Railings
7.  Never permit customers to run to or from the bumper car.
NOTE: aluminum decks are slippery when wet.
8. Always have on each bumper car: A. Stinger pole pad
B. 2 Seatbelts
C. Save-a-tooth
9. Never operate scooter cars without everyone wearing seatbelts.
10. A. Always operate scooter cars at a safe speed.
B. Rectifier speed setting of 3 is recommended.
11. The TM 1800 Euro Scooter building trailer is 50' long, 13'-5" in height. **NOTE:** Extreme caution must be taken when negotiating corners and low overpasses.
12. All Majestic Scooters currently being manufactured are equipped with maxi trailer brakes but it is advisable to chock trailer wheels when unit is parked.
13.  **CAUTION: DO NOT WALK ON CEILING PANELS.**
14. After ride is erected, a visual inspection is required to insure there are no electrical shorts between floor and ceiling or other adjacent equipment.
15. To insure safety, the hydraulic switch located in the control house should be in the off position while ride is in operation. Quick disconnect electrical plug between battery and hydraulic pump, located inside control house, is to be connected at all times.
16. All gates must be closed while ride is in operation.
17. Never ride on back of cars while in operation.
18. Extreme caution is required in high wind when handling scenery or canvas.
19. Safety is an ongoing process. Every operator must use his own judgment for safety due to constant changes in conditions. We, at Majestic, are always receptive to better ways to improve the safety of our Scooter Buildings.

THANK YOU!

PRECAUTIONARY MEASURES



DO'S

1. KEEP BATTERY FULLY CHARGED.

NOTE: A 10 amp battery charger has a charging rate of 10 amps per hour.

A 100 amp battery requires 10 hours to charge to full capacity.

CAUTION! A low battery may damage the hydraulic pump motor or hoist motor.

2. When removing or attaching tractor to trailer, trailer must be resting on landing gear support stands, with hydraulic cylinders raised approximately 1" to prevent damage to cylinders.
3. Position hoist cables in center of drive when raising or lowering decks.
4. Operate scooter cars at a safe, recommended rectifier speed setting of 3.
5. Chock trailer wheels when unit is parked.
6. Release all air from air bags before removing tractor.
7. Have all customers wear their seatbelts.
8. Turn hydraulic pump switch to the off position before operating ride.
9. Close entrance and exit gates before operating ride.
10. Exercise extreme caution in high winds when handling scenery or canvas.
11. Use the Periodic Service Instruction Sheet on Page 11 of the manual to maintain your equipment.
12. Use the Daily Inspection Schedule Sheets provided on Page 20 of this manual.

DONT'S

1. Operate ride unless all necessary blocking is in place under trailer frame and purlings.
2. Remove tractor from trailer until all air has been removed from air bags and trailer is resting on landing gear support stands.
3. Operate electric motors over their recommended maximum continuous usage time.
4. Raise or lower decks unless ground cable has been connected inside control house.
5. Operate ride until all proper support pins and safety keys have been installed.
6. Operate ride unless all stinger pole pads, seatbelts and save-a-tooth have been installed on bumper cars.
7. Walk on ceiling panels.
8. Operate ride until a thorough visual inspection has been made to assure there are no electrical shorts between floor, ceiling or any adjacent equipment.
9. Operate ride unless the hydraulic pump switch is in the off position.
10. Operate ride until entrance and exit gates are closed.
11. Ride on back of cars.

SET UP PROCEDURE

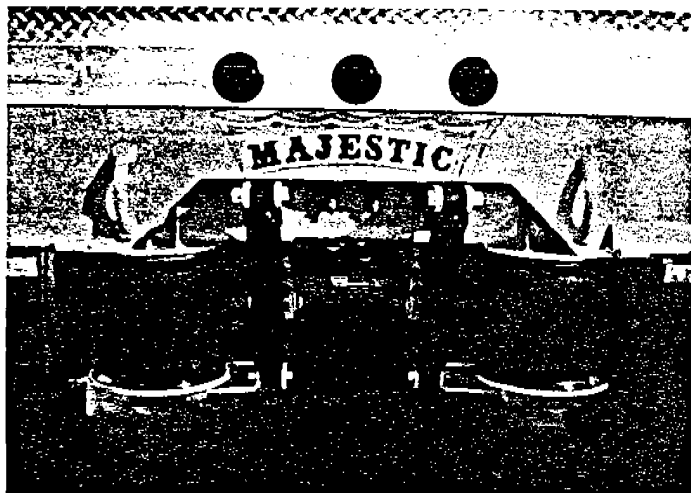


FIGURE 1

1. **PULL RIDE ON LOCATION.** Choose a site as level as possible.
2. **BEFORE REMOVING TRACTOR,** disconnect air from tractor. Then open air valve on rear of trailer and exhaust all air from air bags. (See Figure 1).

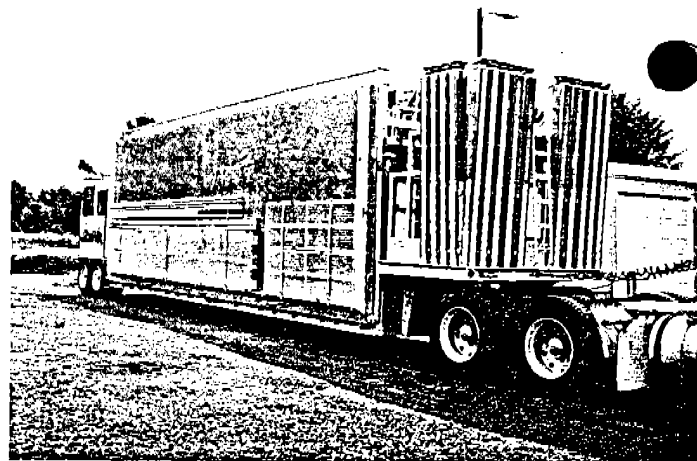


FIGURE 2

3. **REMOVING TRACTOR: (IMPORTANT)** Lower front hydraulic jacks until trailer weight is 95% off tractor springs. Lower and pin mechanical support stands so all weight is on stands. (See Figure 2).
4. **LEVELING TRAILER:** Place a level on trailer gooseneck and rear trailer frame. Ride may now be leveled in an even plane, using proper blocking under support stands. (See Figure 2).

PURLINGS AND DECKS

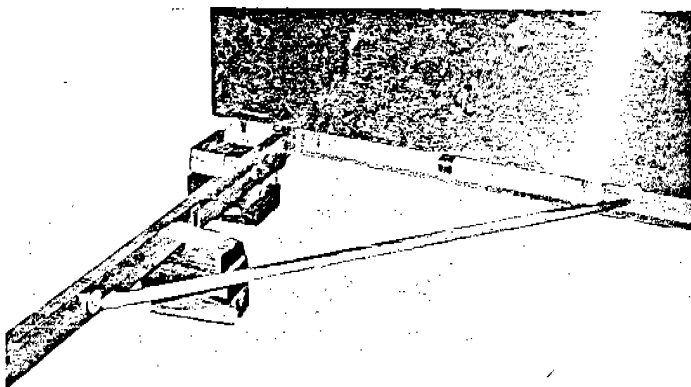


FIGURE 3

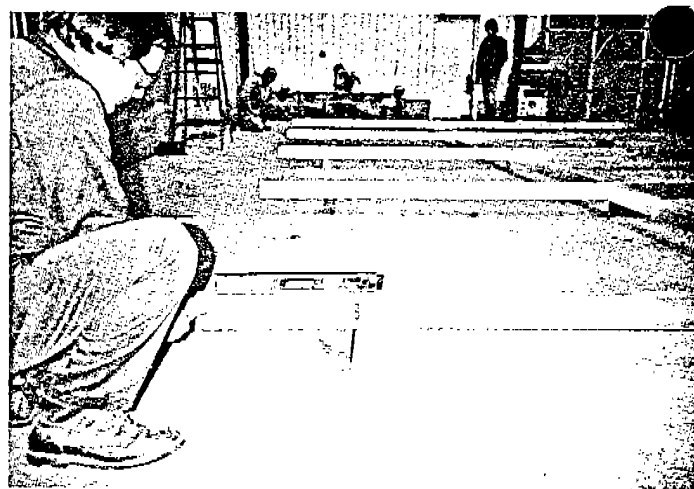


FIGURE 4

1. **INSTALLING PURLINGS:** Remove all underpurlings from deck and install each numbered purling to corresponding numbered position on trailer frame. Square #5 purling with side of trailer frame using squaring bar furnished. (See Figure 3). Now install cross purlings. Level #1 and #5 purlings and using a chalk line or string from #1 to #5 purling and proper blocking at labeled locations "B", level #2, #3 and #4 purlings. (See Figure 4). Repeat above procedure on other side of ride.

2. **LOWER DECK** that winch cables are fastened to. By using toggle switch, snug up cables. Now, remove two 1 1/4" tee handle safety anchor bolts from end of deck. With a person at each end of deck, pull out while extending cables. (See Figure 5). After deck has been lowered, wind up cables and repeat procedure on other side.
3. **AFTER BOTH DECKS** are down, wind up cables and disconnect toggle switch.



NOTE: NEVER STAND BETWEEN PURLINGS WHILE DECKS ARE BEING RAISED OR LOWERED.

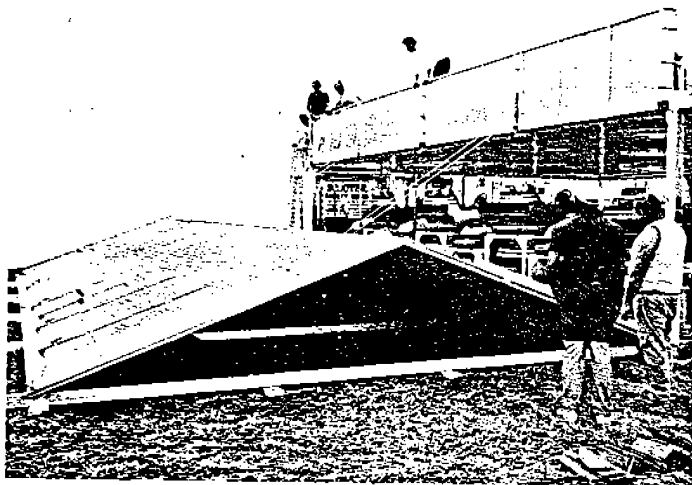


FIGURE 5

BUMPER RAILS



FIGURE 6

1. **INSTALL** removable bumper rails. (See Figure 6).

POSTS

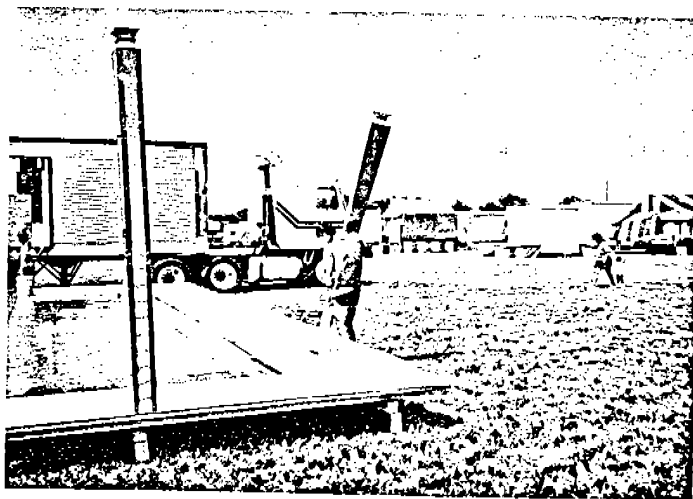


FIGURE 7

INSTALLING CEILING CORNER AND LINE SUPPORT POSTS: Place posts A3, A5, and A7 over post support sockets and install pins in bottom of posts. (See Figures 7 and 8). **NOTE:** Removable support sockets



FIGURE 8

are required at A1 and A9 positions. Now install posts A1, A2, A4, A6, A8 and A9. Repeat this procedure on "B" side of ride.

4. **NOTE:** The TM-1800 Euro Scooter "Front of Ride" designation is: when standing at gooseneck end, looking towards center of ride. When standing in this position, left side (left of trailer) is "A" side and right side is "B" side. This is very important as removable bumper rails, corner and line ceiling posts, catwalks and scenery are all labeled to the proper positions they are to be installed on ride. Proper installation positions of all ceiling posts, fences, catwalks and scenery are: looking at front of ride, **left** of gooseneck will be position A1 and proceed around deck clockwise to the control house end (A1, A2, A3, etc.). **RIGHT** of gooseneck will be position B1 and proceed around deck counterclockwise to control house end (B1, B2, B3, etc.) All posts, fences, catwalks and scenery have been metal stamped and decaled with number and letter designations.

CATWALKS AND RAFTERS

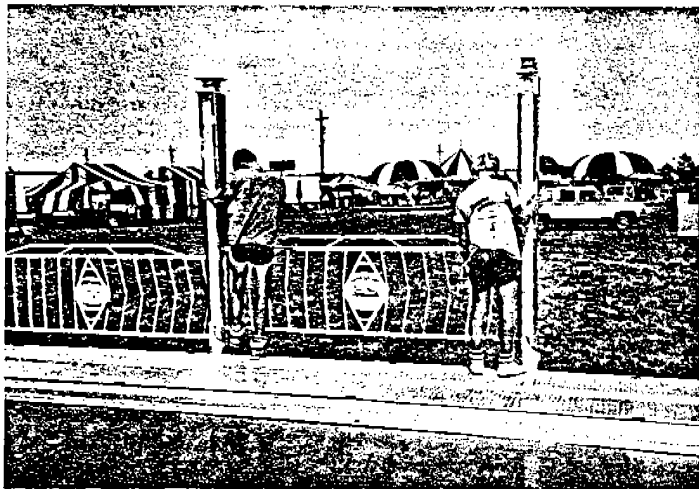


FIGURE 9

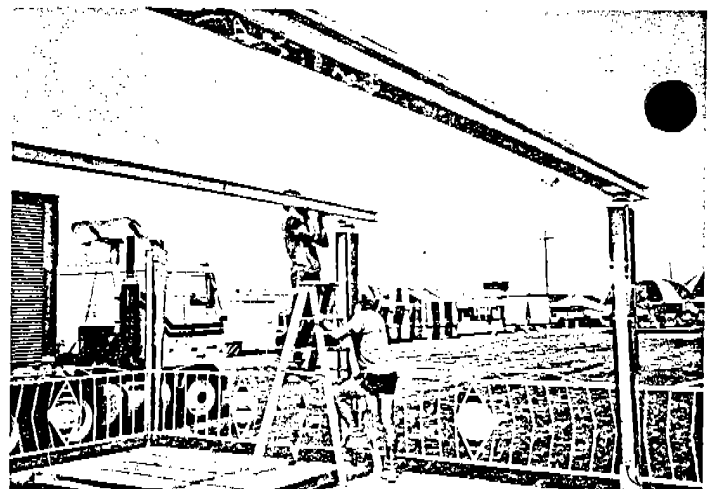


FIGURE 10

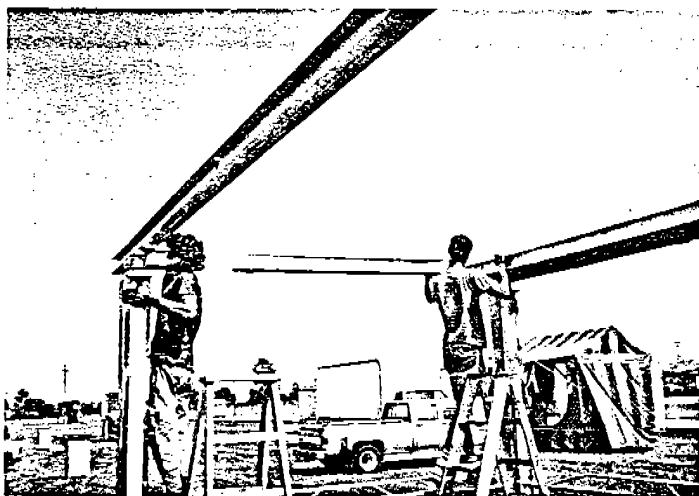


FIGURE 11

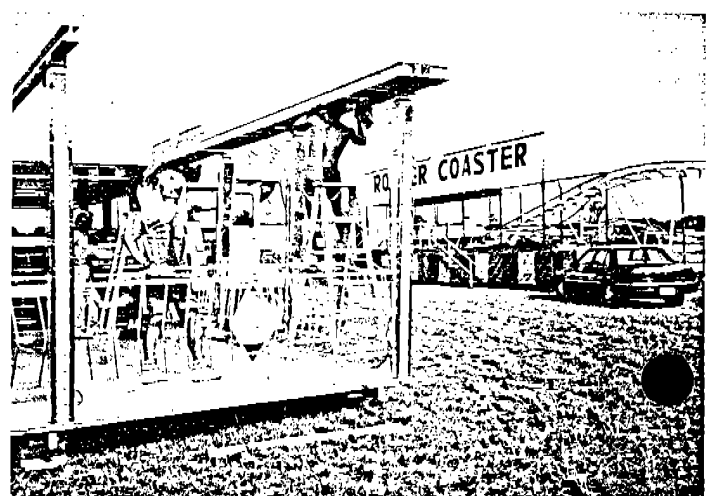


FIGURE 12

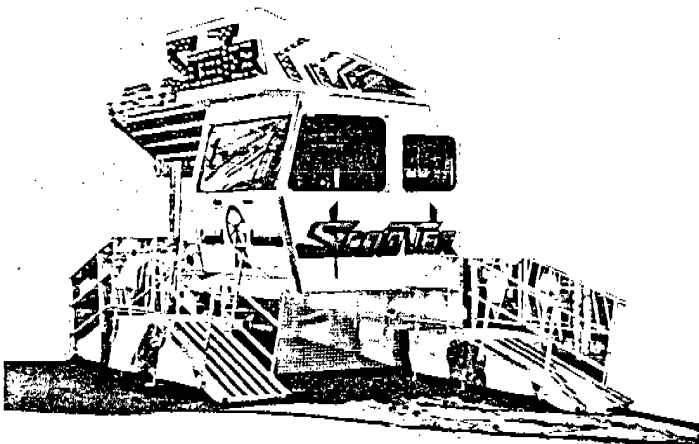


FIGURE 13

1. **REMOVE RAFTERS,** catwalks and fence from racking and be sure all J-bolts, washers and wing nuts accompany racking when storing.

2. **INSTALLING FENCE:** Install all fence and gates. (See Figure 9). **NOTE:** The exit position of gate, ramp and railings may be reversed from left side of control house to right side of gooseneck or vice-versa depending on ride set-up exit preference.
3. **INSTALLING RAFTERS:** Beginning on A-side with center large rafter, install in center of ride. Then install small rafters on either side of center rafter. (See Figure 10). Install catwalks (See Instruction #4) at this time before repeating procedure on "B" side.
4. **INSTALLING CATWALK:** Beginning on "A" side and long catwalks A-1/A-2, set in place at front of ride. Next, set in place long catwalks A-7/A-8 at rear of ride. Short catwalks A-3/A-4/A-5/A-6 may now be installed. Repeat this procedure on "B" side. **NOTE:** Make sure canvas rod is facing inside of ride. (See Figures 11 and 12).
5. **INSTALLING PLATFORMS, RAMPS AND RAILINGS:** Install entrance, exit and control house ticket window platforms, ramps and railings with platform support legs and stands, proper length support pipe and safety keys. (See Figure 13).

CEILING PANELS

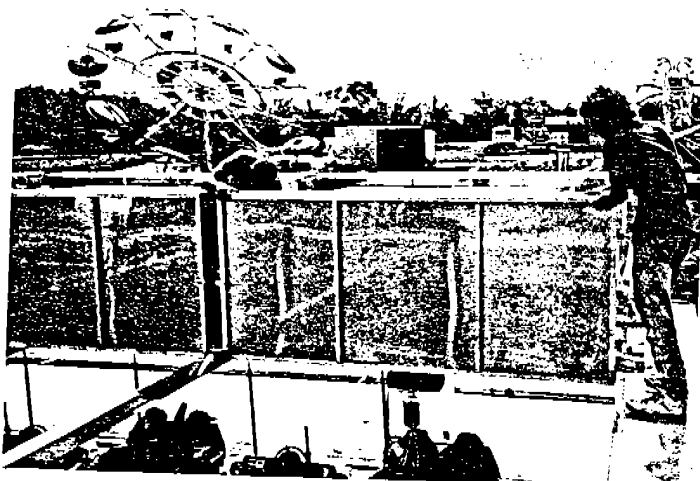


FIGURE 14

1. **LOWERING CEILING PANELS:** After all catwalks and rafters are in place, the ceiling panels may be lowered. (See Figure 14). Remove racking bolts while holding onto panels. Slowly lower the first panel to the rafters. Push it out slightly and let the next panel roll out. Follow this procedure on all ceiling panels. Remove panel racks at front and rear of top assembly.



NOTE: NEVER walk on any ceiling panel.

SCENERY

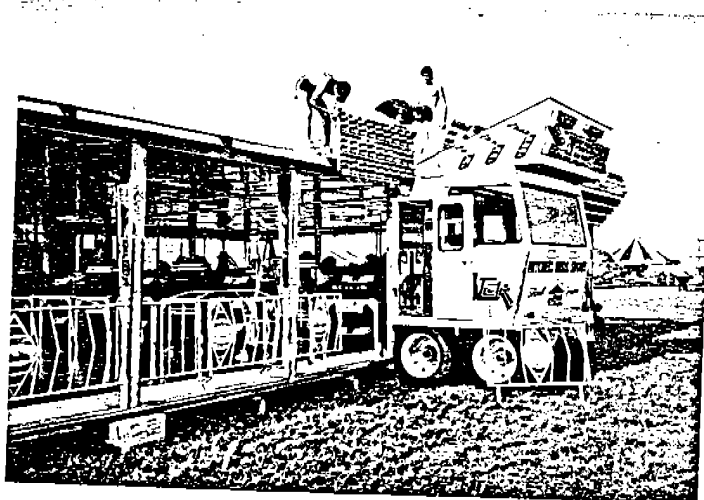


FIGURE 15

1. **INSERT SCENERY PANELS** into edge of catwalk starting at front with A-1 or B-1. Proceed in numerical order. (See Figure 15).



NOTE: Be extremely careful in high winds while handling scenery.

CANVAS

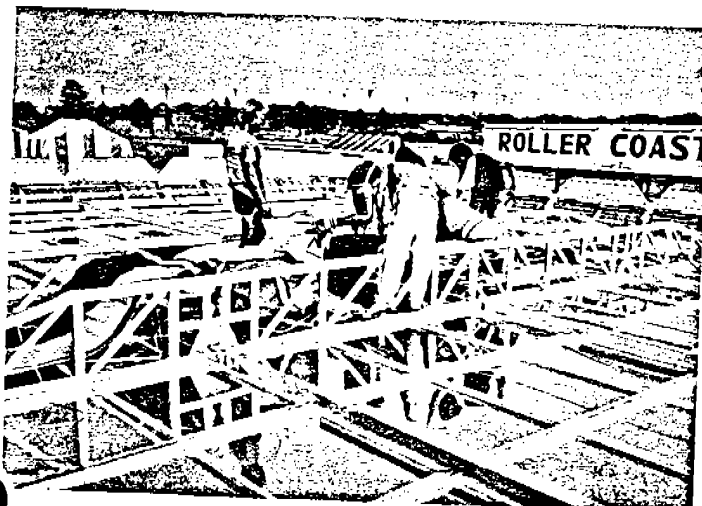



FIGURE 16

1. **SETTING CANVAS:** **NOTE:** Safety key all pins on catwalks and rafters before raising canvas. Remove canvas from canvas bag carefully. Unroll canvas down center of ride. (See Figure 16). Unfold canvas across entire panel assembly. Using the corner tool furnished, attach the four corners to catwalk. After all four corners are attached, hook all clips to canvas rod. Set center poles down through canvas into sockets and attach block and tackle to chain. It is recommended to have a helper inside canvas to place center pole securely in sockets. Once center poles are in place, pull canvas up evenly and secure. Place all quarter poles in their designated locations. **NOTE:** Center and quarter poles are color coded and must be placed in the matching color coded positions on rafters and top assembly.



NOTE: Be extremely careful handling canvas in high winds.

CARS

1.  **UNRACKING CARS:** Unrack cars from center of trailer. **NOTE: Very Important!** When installing stinger poles into bumper cars, never attempt to raise ceiling panels near catwalks A-1, A-7, B-1, B-7 as this will tear canvas. Raise center section of ceiling panels to install stinger poles.

INSPECTION

1. **VISUAL INSPECTION** after erection of ride is recommended to insure all blocking, pins, safety keys in all pins, pole pads, seat belts, etc. have been properly installed.
2. **CONNECTING POWER CORD:** Connect lead in cord: L-1 - Red, L-2 - Black, Neutral - White, Equipment Ground - Green.

NOTE: This unit operates on 220 volt, 1 phase.

ALL MAJESTIC SCOOTERS are equipped with an automatic 12 volt battery charger. Maintain the battery at full charge at all times. Failure to do so may damage the 12 volt DC motors.

-  **SETTING SPEED FOR BUMPER CARS:** Maintaining a safe speed is not only important for your riders

safety, but also saves on maintenance cost due to slower speeds. We recommend a speed depending on the age bracket that gives a rider a comfortable ride without bruises and will return to ride the Scooter again. Set speed dial at #3.

DISASSEMBLY OF SCOOTER: Reverse all procedures to disassemble your Scooter Building.

ELECTRICAL SERVICE

TM-1800 EURO SCOOTER BUILDING

- | | |
|---|---|
| 1. POWER REQUIREMENTS | 220 Volt, Single Phase, 20 KW,
200 Amp Service |
| 2. POWER CORD | 6/4 SO Cord, 100' Standard |
| 3. FLASHING UNIT | Solid State
Input: 220 Volt, Single Phase
Output: 110 Volt |
| 4. RECTIFIER | DC Power Supply 300-80-230-1
Input: 230 Volts, 1 Ph, 60 Hz, 157 Amps
Output: 40 to 80 Volts, 300 Amps DC
See Rectifier Manual, Page 16 |
| 5. SCENERY | Total power req. 71 Amps per 29 Panels
Total power req. 2.45 Amps per Panel
110V Scenery Bulbs, 60V Starburst Bulbs |
| 6. POST LIGHTS | 110V F-40 Fluorescent Bulbs - 2 per Post,
.8 Amp per Post |
| 7. HYDRAULIC PUMP SYSTEM | 12 Volt DC Motor
Pump
Solenoid Coil
See Information and Troubleshooting Guide,
Page 10 |
| 8. ELECTRIC HOIST SYSTEM | 12 Volt DC Motor
Warn Control Box
60-1 Gear Reducer |
| 9. IMPROPER ELECTRIC HOOK-UP TO
SCOOTER BUILDING WILL CAUSE
DAMAGE TO | Flourescent Lights
Flashing Unit
PROFITS |

PERIODIC SERVICE

SCOOTER BUILDING

NO. #	IDENTIFICATION	SERVICE	SERVICE INTERVALS IN HOURS							CORRECT MATERIAL
			10	50	100	200	500	1000	2000	
1.	TRAILER TIRES	PROPER MAINTAIN INFL.					●			255/70 R. 22.5 115 PSI
2.	(KING PIN) TRAILER GOOSENECK	GREASE AS REQUIRED								MULTI-PURPOSE GREASE
3.	HYDRAULIC	REPLACE IF CONTAMINATED			●					DEXTRON A.T.F.
4.	BATTERY	FULLY CHARGE	●							A 10 amp battery charger will take 30 hours/charging on a 300 amp battery
5.	HINGES BETWEEN DECKS	MONTHLY								TRANSMISSION FLUID
6.	DECK SURFACE	DAILY	●							SWEEP
7.	DECK SURFACE	END OF SEASON						●		CLEAN WITH A MILD ACID DETERGENT
8.										
9.	SCENERY LIGHTS	REPLACE IF NEEDED								ALWAYS DISCONNECT POWER 125/130 VOLT - 60 VOLT
10.	DRIVE BELTS	CHECK FOR WEAR AND SLIPPAGE		●						REPLACE WITH
11.	GEAR BOX	CHECK FOR PROPER LEVEL TOP PLUG ON SIDE		●						REPLACE WITH EP-85-140 GEAR OIL
12.	WINCH CABLES	CHECK FOR ABNORMAL WEAR		●						BOTH CABLES MUST BE SAME LENGTH 33'. DIAMETER 5/16"
13.	PILLOW BLOCKS	GREASE		●						MULTI-PURPOSE GREASE
14.	SNATCH BLOCKS	OIL WEEKLY								20W OIL
15.										
16.	TRAILER AXLE	OIL								REPLACE WITH EP-85-14C GEAR OIL

BUMPER CARS

IF APPLICABLE

1.	CAR LIGHTS	REPLACE IF NEEDED								24 VOLT-30 VOLT
2.	BUMPER TIRE	13 TO 16 PSI AND TIRE CONDITION	●							SILICONE SPRAY
3.	CAR MOTOR	BLOW-OUT	●							COMPRESSED AIR
4.	PEDAL-UNIT	CHECK COPPER BLOCKS FOR WEAR - OIL PEDAL HINGE		●						40W OIL
5.	CAR TRANSMISSION	CHECK FOR LEAKAGE				●				REPLACE AND REFILL WITH SHELL ALVANIA Z TO THE PROPER LEVEL
6.	CLUTCH LINING	CHECK FOR WEAR						●		REPLACE AFTER 30,000-50,000 RIDERS PER CAR
7.	BELL HOUSING	GREASE				●				MULTI-PURPOSE GREASE
8.	IRON WHEEL	CLEAN				●				WIRE BRUSH OR SAND PAPER
9.	DRIVE WHEEL	INSPECT FOR WEAR					●			REPLACE IF WORN
10.	WHEEL AXLE	INSPECT FOR WEAR					●			REPLACE IF WORN
11.	TROLLEY WHEELS	LUBRICATE	●							1 DROP CHAIN OIL
12.	TROLLEY BRACKET	LUBRICATE	●							VASOLINE
13.	MICRO PEDAL	CLEAN CONTACTS		●						

IF APPLICABLE

INFORMATION AND TROUBLESHOOTING GUIDE FOR D.C. POWER HYDRAULIC UNITS AND CYLINDERS

TEST EQUIPMENT

The following is a list of the test equipment required to troubleshoot D.C. powered hydraulic systems.

1. PRESSURE GAUGE: 0-5000 PSI pressure gauge, preferably glycerine filled, is a very valuable and relatively inexpensive tool for checking pressure in the various sections of the circuit.

2. D.C. TEST LIGHT: A test light is simply a light bulb which has one end connected by a wire to an alligator clip and the other end connected to a metal probe. It is used to check the electrical circuit when the battery is connected to the system. The alligator clip is grounded and the light glows when the probe comes in contact with a "HOT" electrical component. They are easily obtained from automotive jobbers or discount stores.

3. CONTINUITY LIGHT: A continuity light is like a test light but contains its own battery power source. It is used for testing electrical circuits when the components are not connected to a battery. They are easily obtained from discount stores or electrical jobbers at modest cost.

4. VOLT METER: An A.C.-D.C. meter is a good investment for troubleshooting problems that are related to low voltage. They are used in two ways:

First - one probe is grounded while the other is used to

probe the "HOT" leads, the meter shows the voltage available at the point where the second probe is connected.

Second - they can be used to measure a voltage drop in a wire. One probe is connected to one end of wire and other probe to ground. Reading is the voltage drop.

5. OHM METER: An OHM meter is used to measure resistance and is a very useful tool when working on wire circuits and solenoid coils. On some coils the wire resistance is up to a level where a D.C. test light might show an open circuit and it really is not so. An infinite meter reading on any test shows that the circuit is open. A coil test, however, will always show some value of resistance but it must not be infinite. All tests conducted with an OHM meter must be done with the battery disconnected from the system.

6. ASSORTED HOSES, HIGH PRESSURE FITTINGS: These can be used to connect and/or isolate certain parts of a hydraulic circuit to a pressure gauge or a shutoff valve for diagnosing hydraulic problems.

7. HIGH PRESSURE SHUTOFF VALVE: The shutoff valve can be used to choke off oil flow so that a "false" load can be put on the pump and other components. With the valve installed it can be slowly shut off while the equipment listed above records the data for making a proper diagnosis.

HYDRAULIC FLUID

1. THE PURPOSE OF OIL: The main purpose of hydraulic fluid is to transfer power from the pump to the actuators but it must also perform many other tasks which are critical to a well designed system. First, the oil must have good lubricity or be "slippery" so that the friction will be as low as possible to keep metal to metal wearing at a minimum. Second, the viscosity or "thickness" must be in the proper range at the operating temperature so that unwanted leakage will be at a minimum, but will still allow the oil to lubricate the close fitting parts in the system. (Oil that is too thin will leak past seals, valve spools, and the gears; oil that is too thick will not flow properly and cause the pump to cavitate or starve.) Third, the oil must be compatible with the seals used in the system. Fourth, there should also be additives in the oil to slow down the effects of rust, oxidation (oxygen in the air combining with the oil to form sludge), foaming, and water settling to the bottom of the reservoir. Fifth, the oil must be able to pour or flow at the lowest expected temperature so that the oil can reach or get into the pump. For all of the reasons just listed, automatic transmission fluid (ATF) was found in most cases, to be the best readily available fluid for the job in most climate conditions.

2. SELECTING FLUIDS FOR APPLICATIONS OUTSIDE OF ATF'S TEMPERATURE RANGE: When looking for fluids that can be used in place of automatic transmission fluid or for applications where the operating temper-

ature is outside of the range of automatic transmission fluid the following specifications should be discussed with your local oil distributor:

A. Fluid must be compatible with Buna-N sealing compounds.

B. The pour point must be below the lowest anticipated temperature that will be encountered.

C. It should contain rust and oxidation as well as other detergent type inhibitors.

D. The viscosity (SUS) should lie between 80 as a minimum and 375 as a maximum in the operating range, with the ideal viscosity near 200 SUS.

E. The viscosity index should be as high as possible.

As an example, automatic transmission fluid (ATF) has the following specifications as listed by most oil manufacturers.

Viscosity (SUS)

100° F 185 to 205

210° F 45 to 55

Pour Point -45° F to -35° F

Viscosity Index 145 to 165

NOTE: In an emergency for cold weather applications SAE 10W non-detergent oil mixed by volume with no more than 30% #1 fuel oil or kerosene can be used.

PUMPS

1. TYPE AND REPAIR: All monarch pumps are of the external gear type. They are not complex in construction and properly maintained give years of trouble free service. Before accusing or disassembling the pump because of failure, make certain all other possibilities have been considered as the close tolerances can be disrupted by disassembly.

A. Pump disassembly (Model M-XXX)

1. Loosen and remove the eight 1/4" - 20 socket head cap screws.
2. Remove suction plate.

NOTE: WATCH FOR THRUST BALL ON DRIVE SHAFT.

3. Remove idler gear and shaft as an assembled unit.
4. Remove the "spiral lock" from remaining drive shaft.
5. Remove drive gear.
6. Remove key on drive shaft.
7. Remove cylinder plate.

8. Remove dowels.

9. Remove remaining "spiral lock" on drive shaft.
10. Remove wear plate.
11. Remove drive shaft through base.
12. Replace seal in base whenever rebuilding pump unless no evidence of leak exists. (See Section B below.)
13. Use care when installing shaft back through seal so as not to cut lip. (Grease seal lip before installing shaft.)
14. Install all remaining parts in reverse order replacing those that are scored or damaged.
15. Torque socket head cap screws to 125-150 lb. in.

B. Seal Failure- A cut or damaged lip on the seal, a bad fit on the outside diameter, or a seal that is "blown" partially out of the seal cavity will allow air to be drawn into the pump and will be evidenced by foaming oil and a pump that will not reach high pressures. Repair as outlined above in Section A.

PUMP PRIMING

1. NEW INSTALLATIONS: New system installations, as well as those that are disassembled for repair, require proper priming to avoid possible pump failure. A pump is said to be "primed" when the internal cavity is full of oil and the air has been expelled.

A. Prime a pump as follows:

1. "Crack" or remove the high pressure line at or near the cylinder.
2. "Jog" the unit until oil flow is clear. (Air is absent).
3. Retighten or replace hose.

2. ON SYSTEMS THAT FAIL TO PRIME OR LOOSE THEIR PRIME, CHECK FOR THE FOLLOWING:

A. Correct unit mounting position in the case of a pump-motor-reservoir combination. It is either horizontal or vertical and failure to mount in proper manner could mean pump cannot prime (pick up oil) because the suction is not submerged in the oil at all times.

NOTE: All pumps designed for vertical mounting have a label stating such.

- B. Proper reservoir size. (See Reservoir Section.)
- C. Partially clogged suction filter. (See Filter Section.)
- D. A loose or improperly installed suction hose or pick up tube.
- E. A bad front pump seal. (See Pump Section.)
- F. A solid fill plug in reservoir with no vent. (See Reservoir Section.)
- G. Oil that is too thick (See Hydraulic Fluid Section), or contaminated with water. (See Reservoir Section.)
- H. Occasionally a pump will not prime itself because a check valve spring in the high pressure port is too "stiff" or the spring retainer is turned down too far. If this condition is expected, loosen the spring retainer (it is found in the 3/4" high pressure outlet port), energize the pump to prime it, and then turn the retainer back to the correct depth. (See Section on Check Valves.)

RESERVOIRS

1. USE RECOMMENDED FLUID: Fill reservoir with the approved fluid as specified on the label next to fill hole. (See Hydraulic Fluid Section.)

2. CORRECT FILLING AND OPERATING PROCEDURE:

A. Fill reservoir to within $\frac{1}{2}$ " from the top with all the cylinders in the fully retracted position.

B. Operate unit several times starting with short cylinder strokes and increasing length with each successive stroke.

C. Recheck oil level often and add as necessary to keep pump from picking up air.

D. After system is completely "bled" collapse all cylinders, check oil level in reservoir, and install the filter/breather plug provided.

NOTE: Do not use a solid plug or a fill cap without a filter/breather element or damage will be caused to pump and/or reservoir.

3. PROBLEMS ASSOCIATED WITH THE RESERVOIR:

A. Clear oil flowing out of fill hole usually points to either one of the following:

1. Cylinders were not fully collapsed when reservoir was filled.

2. Reservoir is too small for cylinders total stroke.

B. Foamy oil flowing out of the fill hole points to the following:

1. Air is present in the system; that is, cylinders and fluid lines. The response usually is "spongy" and the cylinder moves with "jerking" motion.

2. There is no drop tube or "down spout" on the return line so that the oil is not returning to the bottom of the reservoir.

3. The return oil velocity is excessive; to correct add a flow control valve to slow velocity, increase size of "down spout", add a diffuser, or use a larger reservoir to increase depth of oil above the end of the return tube.

4. The reservoir is too small to supply the volume of oil required by the cylinders and the pump picks up air when the oil level drops below the suction pick up tube.

5. Damage to pump seal. (See Pump Section.)

C. Water in the oil. Water can enter the reservoir through the fill hole if the unit is left outdoors or washed with high pressure washers. Protect the unit, whenever possible, and change oil regularly to minimize problems. In cold weather the water will freeze and the pump will not work until the ice melts.

4. TIPS AND COMMENTS:

A. In most cases the reservoir is made to be mounted either vertically or horizontally and improper mounting will not allow it to be filled to capacity. (See Pump Priming Section.)

B. On units with a remote reservoir, try to mount it above the pump whenever possible to "flood" the inlet.

C. One of the functions of the reservoir is to keep the oil in the proper temperature range. If the reservoir cannot dissipate enough heat, increase the size in order to bring the oil temperature down to the proper level. (See Hydraulic Section.)

FILTERS

1. SUCTION FILTERS: All Monarch hydraulic controls have suction filters which must be cleaned periodically or whenever flow is slow or sluggish. Some filters can be washed in cleaning solvent and blown dry with compressed air. Those which cannot be cleaned properly should be replaced. External high pressure filters may be added to the system for added protection and ease of cleaning.

2. ADDITIONAL SYSTEM FILTERS:

A. Models M-303, M-503, M-603 and M-723. These specific models have filters in addition to the pump suction filter for protecting the valve. One is located inside the two-piece hex fitting just ahead of the DR (2-way, 2-position) lowering valve inside the reservoir. It can be taken apart for cleaning or replacing the filter element. The other filter is a "body" filter located in the cartridge of the DR lowering solenoid valve. It can be replaced by removing the cartridge from the square valve block.

B. Models in M-640 Series. These models also are equipped with additional filters for protecting the solenoid valves. First: each port, C₁ and C₂ on the flat surface have a cone shaped filter in the valve body. They can be reached as follows:

1. If the ports, C₁ and C₂, on the flat surface are not being used, remove the flush $\frac{1}{4}$ " pipe plugs.
2. If the ports, C₁ and C₂ on the flat surface are being used; remove the hoses.

3. Reach down into these ports with a $\frac{1}{4}$ " allen key and remove the filter retainer screws.

4. Remove the filters and clean or replace as necessary.

5. Reassemble in reverse order.

Second: each valve cartridge has a "body" filter to provide additional protection from dirt. To clean or replace these filters the valve body must be removed from the reservoir and the cartridge removed from the body. Clean with solvent and compressed air or replace as required.

C. Models in M-670 and M-680 Series. Like the M-640 series, these models also have port and cartridge filters. The port filters are located just below the surface in each outlet (C₁, C₂, C₃). To clean or replace, proceed as follows:

1. Remove the hoses from the valve body.
2. Remove the filter retainer screws with a $\frac{1}{4}$ " allen key.
3. Remove and clean or replace filters as required.
4. Reassemble in reverse order.

The cartridge "body" filters are removed and repaired in the same manner as described in the M-640 models above.

NOTE: Do not use teflon tape on hydraulic fittings as it can easily jam valves and plug the filters in the system.

ELECTRICAL PROBLEMS



NOTE: REMOVE ALL RINGS, WATCHES, ETC. PRIOR TO DOING ANY ELECTRICAL WORK!

1. LOW VOLTAGE: Operating direct current (D.C.) power units efficiently requires proper voltage. Any attempt to operate below the minimum required voltage could cause system failure.

A. Signals which indicate low voltages are:

1. Motor running at reduced speed.
2. Solenoid valves not shifting.

B. Minimum voltage readings are as follows:

1. The minimum voltage between the motor stud and ground is 9.0 volts at maximum load conditions.
2. The minimum voltage between the valve solenoid power wire ("hot wire") and ground is 9½ volts at maximum load conditions.

C. Causes for low voltage are:

1. Battery capacity too small.
2. Cable ends not electrically secure to battery cable. (Solder them if necessary.)
3. Battery cable size too small for load and length of run. Copper #1 automotive battery cable is the recommended minimum size. (The wire core diameter of #1 battery cable is approximately 3/8"). Larger copper battery cable, #0 or #00, may be required for cable lengths over 16 feet to keep performance from deteriorating.
4. Ground cable size not equivalent or larger than battery cable.
5. Bad joints where cable ends are bolted to battery, motor solenoid, start switch, ground and etc.
6. Burnt contacts on motor solenoid or start switch.

D. Check for low voltage as follows: (A volt meter will be required.)

1. On vehicles equipped with an alternator, the voltage should be approximately 13.5 volts with no electrical accessories operating and the engine running. Check it.
2. Operate pump unit under maximum conditions. This would be either under full load or when pump is running over relief (cylinder dead headed). Use the volt meter to probe each connection, cable end and cable from the battery all the way back to the motor stud and note the voltage losses. Make the necessary repairs. Increase the voltage above the minimum required.

NOTE: Check the ground side as well, paint, rust and dirt are insulators. Remove them.

2. D. C. MOTORS: Motors should be serviced periodically to insure good performance. Service as follows:

- A. Remove head assembly from motor.
- B. Check sleeve bearing in head assembly for wear.
- C. Place a few drops of oil on felt liner in head assembly.
- D. Check brush set for wear and replace if necessary.

E. Blow dirt and dust out of motor housing and check for shorts, burnt wires, or open circuits in the field coil assembly.

F. Check armature and commutator for shorts or open circuits.

G. Check ball bearing on motor shaft. A growling motor can be caused by bad bearings.

H. Check for excessive "end play" of armature and add thrust washers as required.

I. If there is an excessive amount of water, condensation, or rust in the motor, a small drain hole may be drilled in the motor case on the low side of the motor depending on the mounting. Consult with factory for additional information.

NOTE: A motor that does not turn in freezing weather could be caused by water that has frozen inside the housing.

J. All Monarch D.C. motors rotate counterclockwise when viewed from drive end. Check it when replacing motor with a new one.

K. If motor fails to turn the pump, check the pump by turning the shaft by hand. It may be "set up". (See Pump Section.)

3. ELECTRICAL SWITCHES:

A. "Contact finger" switches (Manual Valves). All models that use a contact finger(s) attached to the handle or shaft of a manual valve to start the D.C. motor, do so by "grounding" the small post of a solenoid start switch. When repairing systems with contact fingers, check for the following:

1. Improperly aligned or broken contact finger.
2. Nub nut assembly that is not insulated from ground.
3. Wires that are bare or shorted to ground.

B. Motor start solenoid switches. Although there are exceptions, most solenoid switches found on Monarch systems are one of the following two types:

1. 3-Post solenoid switch (See Figure 1).

a. The three post solenoid switch is wired and constructed as follows:

1. The large post marked "Bat" must be attached to the cable leading from the battery.
2. The small post connects to the control circuit. (Contact finger, push button, toggle switch, etc.)
3. The remaining large post attaches to cable leading from the motor.

2. Solenoid Coils: Coils are used in solenoid operated valves and solenoid start switches. Failures can be caused by vibration, water, improper voltage or corrosion. The best way to test a coil is with an OHM meter. The meter should read some value of OHMS and an infinite reading means that the coil has an open circuit. The reading between any lead on the coil and the "can" should be infinite unless there is only one lead wire and the coil is grounded to the can.

RELIEF VALVES

1. THE PURPOSE OF A RELIEF VALVE IS TO:

- A. Limit the max pressure in the system to a safe level.
- B. Keep the amp draw and battery drain at a minimum when the cylinder "dead heads" reaches full stroke.

2. THE TWO STYLES OF RELIEF VALVES USED BY MONARCH ARE:

A. Internal style - An "internal" cavity is drilled into the pump base into which the following parts are inserted to make up the relief valve assembly.

- 1. Ball or cone
- 2. Heavy spring
- 3. Adjusting screw

B. External style - A relief valve mounted "outside" of the pump base in a housing of some kind is called an external style (inline). It is made up of the following parts:

- 1. Ball or cone
- 2. Heavy spring
- 3. Adjusting screw
- 4. Housing - usually hex-shaped

3. DIAGNOSING AND REPAIRING RELIEF VALVES:

NOTE: When testing or making adjustments on the relief valve, the system must be "dead headed" (cylinder at full stroke or in a position where cylinder movement is zero).

A. Relief valve pressure too high.

1. Symptoms:

- a. Amp draw and battery drain excessive when system is "dead headed".
- b. Motor RPM is slow in comparison to full load system operation.

2. Repair procedure:

- a. Turn relief valve adjusting screw counterclockwise using a gauge, tee'd into the high pressure line, to record the proper pressure setting.

NOTE: On the "internal" relief valve the flush 1/4" pipe plug will have to be removed to reach the adjusting screw (see label). On the "inline" style relief valve the return lines, threaded into the back, will have to be removed in order to reach the adjusting screw. The "internal" relief valve is adjusted with a screw driver and the "inline" relief is adjusted with a 1/4" allen key.

B. Relief valve pressure too low.

1. Symptoms:

- a. Motor RPM is "faster" than normal.

- b. Cylinder will not extend.
- c. Excessive turbulence in the reservoir.

NOTE: On applications where the cylinder is being replaced or the mechanical mechanism is being modified, make sure the pressure capability of the pump is not being exceeded.

2. Repair procedure.

- a. There are two possible causes for lack of pressure:

- 1. The adjusting screw has backed up.
- 2. Foreign matter or "dirt" is trapped between the seat and the ball or cone.

- b. Repair as follows:

- 1. Using a gauge, tee'd into the pressure line, turn the adjusting screw clockwise a turn or two and watch the gauge. If it goes up, continue to turn the screw until the required setting is reached. If the screw does not remain in the correct position, replace it with one that has a locking patch. (In an emergency the screw threads can be deformed slightly with a small prick punch and hammer to hold the setting.)
- 2. If the pressure does not climb when the adjusting screw is tightened; turn the adjusting screw counterclockwise all the way out; energize the pump to "flush" the dirt past the seat. (Caution: use hand or a piece of hose to divert oil into a container. Do not look into the port.) Inspect the cone or ball for nicks and replace if necessary. Reseat the ball or cone using a small drift punch and hammer with a light tap. Reinstall spring and screw and reset the pressure.

NOTE: In an emergency, if a pressure gauge is not available, turn the relief valve screw in until the cylinder moves under worst conditions and then tighten 1/2 to 3/4 turns.

- 3. If the above mentioned procedure fails to increase the relief valve setting, check for a worn pump. (See Pump Section) or leaking cylinder (See Cylinder Section).

NOTE: Do not use teflon tape on hydraulic fittings as it can easily jam valves and plug the filters in the system.

DIRECTIONAL CONTROL VALVES

1. MANUAL VALVES: This type of valve is operated by a handle or control rod of some kind. Two styles are used on D.C. systems.

A. The rectangular 3-Way Style

1. These valves operate as follows:

- a. The handle is connected to a cam.
- b. The cam moves the "quill" back and forth to either block flow to reservoir and thereby forcing oil into the cylinder, or to push the ball off the seat in the "check" portion of the valve to allow the oil to return to the reservoir.

NOTE: Only one of these valves can be used in a system (unless there is a selector ahead of it) and it must be last in the circuit.

2. Troubleshoot and Repair as follows:

- a. If the load "raises" slow, and the valve suspected, check for:
 - 1. A loose handle on the cam-shaft.
 - 2. Cam surface worn on cam-shaft.
 - 3. "Quill" cam slot worn.

4. Handle stop is hitting valve block so that quill is not being forced to block flow.

NOTE: Remove the reservoir return line and observe the flow going to reservoir when the valve is in the raise position - it should be zero or close to it.

- b. If the load does not hold or will not come down, check the following:
 1. Handle loose on cam-shaft.
 2. Cam surface worn on cam-shaft.
 3. "Quill" cam slot worn.
 4. Check portion of valve is dirty or damaged. See section on check valves (external ball type) for repair.
 5. Check valve shell is out of adjustment. Bring it back into proper adjustment by using gasket-shims between it and the housing.
 6. Broken or stretched spring(s).

B. The Round or Cylindrical Style Valve.

1. These valves operate as follows:
 - a. The handle is connected and aligned to a rotor by a shaft.

- b. The rotor is held and returned to the "Center" position by a torsion spring and two spring pins.

2. Troubleshoot and repair as follows:

- a. If the valve does not direct the oil properly when "shifted" check for:
 1. A misaligned or loose handle on the shaft caused by a loose set screw. Retighten the set screw making sure that it enters the center of the locating hole in the shaft.
 2. A fractured or bent split-pin between the rotor and shaft. Disassemble the valve and replace the split-pin.

NOTE: Before you disassemble the valve, mark all of the plates so they can be reassembled in the correct position.

- b. If the valve leaks oil, replace the O-rings. There are O-rings on the shaft and between the plates. To replace them requires that the valve be disassembled. (See note above).

NOTE: For electrical problems associated with manual valves, see the electrical contact-finger switch section.

HYDRAULIC CYLINDERS

1. DIAGNOSING AND TROUBLESHOOTING CYLINDERS:

- A. Single Acting (Ram Type)
 1. Most ram type failures are caused by one of the following reasons:
 - a. Excessive side load.
 - b. Stroking the rod to full extension.
 2. Excessive side load can be diagnosed by observing the following:
 - a. Cracked gland nut.
 - b. Gouged rod.
 - c. A cocked or bent rod that will not retract back into the tube.
 3. Over stroking can be diagnosed by observing the following:
 - a. Premature leakage past the V-rings.
 - b. System filters that become prematurely clogged with pieces of rubber due to V-ring crushing. (See Section on Filters.)
 1. Provide a mechanical stop or electrical switch to prevent over stroking.
- B. Double Acting
 1. In addition to the same types of failures as found in single acting ram type cylinders (See above) it is also possible to have a piston seal failure. This failure will show up as a cylinder drift in the hold position. Troubleshoot in the following manner:
 - a. Put the cylinder in a hold position.
 - b. Place a jack under the load.
 - c. Remove the high pressure hose from the cylinder port on the side OPPOSITE the holding end.
 - d. Let the jack down slowly, if the piston seal is bad, oil will escape from the port.

2. REPAIRING HYDRAULIC CYLINDERS:

- A. Single Acting Cylinder
 1. Remove cylinder from the installation. Disconnect hose line(s) and drain oil.
 2. Remove gland nut, rod, spreader and packing assembly from the tube assembly.
 3. Clean internal tube and inspect chrome rod for gouges, scratches, or wear. Replace if necessary.
 4. Place chrome rod back into tube assembly.
 5. Insert steel spreader.
 6. Grease the V-ring set on the inside and outside diameters.
 7. Reinstall one V-ring at a time making sure each V-ring lies flat on the ring prior to it.
 8. Replace the gland nut complete with a new wiper ring if worn and thread it down until it makes contact with the V-rings then tighten an additional 1½ to 2 turns. The distance between top of threaded collar and the bottom of large section on gland nut should be 5/16" to 1/4". Do not overtighten.

NOTE: If it is possible to stroke the cylinder after repair, turn gland nut until it contacts V-rings, stroke the cylinder to allow rings to seat and align, then retighten as described above.

B. Double-Acting Cylinder

1. Follow the exact same procedures (1), (2), and (3) above.



NOTE: DO NOT GET NEAR LOAD . . . USE CAUTION!!!

2. Double acting cylinders have two piston cups on the internal threaded end of the chrome rod. If these cups are worn they must be replaced to insure a proper seal. It is also advisable to check the piston "O" ring and the stuffing box "O" ring and replace if signs of wear exist.

NOTE: When replacing piston on the rod have O-ring well greased and screw the piston past the threads to prevent damage to the new O-ring.

3. Replace V-rings, spreader and gland nut described in (5), (6), (7), and (8) above.

—TROUBLESHOOTING—

ONLY TO BE DONE BY A QUALIFIED ELECTRICIAN

REFER TO YOUR W/D NO. B20024-4.

1. Insure that you have 230 volts line input at L1 and L2.
2. Insure that you have 120 volts A.C. on the output of the control transformer, (T2). This should be at X1 and X2.
3. With the timer in the "on" mode, or with a jumper shunting the TB2, you should note that the main contactor (K1) will pull in. If K1 does not pull in, there is an "open" in the control circuit. Check out the control circuit fuse (F3). Then check for 120 volts at the K1 coil.

NOTE: It may be necessary to shunt "S2" door switch to complete the control circuit while making voltage checks.

4. With the K1 contactor pulled in, you should obtain 230 volts at T1 and T2, the output of the K1 contactor.
5. Check for 230 volts, before and after the main fuses (F1).

6. Then check for 230 volts at the common of tap switch S1 and the common of TB1.
7. Check for 56 to 98 volts A.C. on the secondary side of the power transformer, while turning the tap switch from 1 to 8.
8. Check for this same voltage at the input (yellow and yellow) of the silicon diode bridge.
9. Check for 40 to 70 volts D.C. on the output of the silicon diode stack. Red is positive, black is negative.
10. Check for 40 to 70 volts D.C. on both sides of the D.C. output fuse (F2). This is a window fuse. You can see if it is blown.
11. Check for this same D.C. voltage at the output terminals.
12. If you have this voltage at the output terminals and you do not draw amperage, under load, you have an "open" in your D.C. output cable leads. Check your connections at both ends of these leads.

—MAJESTIC RECTIFIER—

OPERATION:

1. Never operate the unit with any panel removed when under load.
2. Turn the voltage control counterclockwise (to the left) so that the dial indicator is on the "1" position of the dial plate. This is the setting for the lowest possible output voltage available.
3. After the power supply is installed as above, apply the line voltage to it.
4. Energize the "Timer".
5. Turn the voltage control knob clockwise (to the right) to increase the output voltage.
6. The ammeter and voltmeter will monitor the D.C. output. The ammeter will only read when the load is supplied.

CAUTION: Do not exceed a D.C. output voltage greater than the nameplate rating. Additional voltage is available to compensate for possible low incoming line voltages. Do not change speed while under load.

7. Do not load the unit in excess of the nameplate rating. In the event of an overload, ground or short the load, the D.C. protecting fuse will blow (F2). When this occurs, reduce the D.C. ampere output and/or clear the ground before restarting the power supply.
8. The RED pilot light will indicate POWER ON.
9. REMOTE KILL SWITCH: TB-3 makes provisions for wiring up a remote "KILL SWITCH" at the work area. Opening this remote switch prevents the Power Supply from allowing its output.

MAINTENANCE:

1. Rectifier elements MUST be kept clean to insure proper ventilation. Dirt accumulations will result in improper cooling, causing excessive overheating, which will eventually damage the rectifier elements and other components. We urge cleaning of the power supply every six months, using compressed air or a vacuum cleaner. Do

not place objects on top, as they will restrict the air flow and damage components. Fan motors (of ¼ and ½ HP) are packed with sufficient grease for approximately five years of operation under normal conditions. After years, the bearing and housings should be cleaned thoroughly and repacked. Smaller fan motors should be oiled carefully every six months.

2. Inspect all cables, wires and connections for loose connection or overheating. If hot looking spots are found, repair them before they open up, causing serious trouble.
3. Check the calibration of the meters. They should be kept within 2% accuracy of the full scale readings. Watch for sticking of the pointer. See that the pointers are zeroed.
4. In case of blown diodes, the following steps should be taken:
 - A. Before replacing the blown diode, the reason or cause of failure should be determined. The diode or diodes in the affected circuit should be isolated (disconnected) electrically from the circuit (disconnect the pig-tail end).
 - B. Each diode should then be checked for forward and reverse resistance.

NOTE: If the diode is good, the low resistance reading should be very low, approximately 10 to 20 OHMS. The high resistance would be in the range of 1,000 OHMS to 50,000 OHMS. This is variable in diodes. If both readings are high, then the diode should be considered bad and replaced. If no continuity is found, the diode is open and should be replaced.

CAUTION: NEVER OPERATE THE UNIT WITHOUT THE FAN OR WITH ANY PANEL REMOVED WHEN UNDER LOAD. AFTER UNIT HAS BEEN CLEANED, BE SURE PANELS ARE PUT BACK.

"AZZURRA CAR"

MAINTENANCE INSTRUCTIONS

BUMPER CARS - MAIN FEATURES

CHASSIS	Manufactured with cold formed steel in various sections, bent and welded.
BODY	Reinforced fiberglass body shell with molded-in two-tone colors.
SEAT	Fiberglass structure covered with hi-density polyurethane foam.
DASHBOARD ...	Fiberglass structure covered with hi-density polyurethane foam.
TRIMS	Cold formed and/or hand bent stainless steel.
LENS	Special plastic safety glass.
TIRE	Pneumatic tire with tube all around the chassis. Operative pressure Max 11 kg/cm ² (13-16 PSI)
MOTOR	D.C. electric motor operating from 70 up to 115 volt. Clutch and transmission built-in. Operative power 0.78 KW.
SIZE	
LENGTH	1.940 mm (6'4")
WIDTH	1.220 mm (4'0")
HEIGHT HEADREST	780 mm (2'6")
HEIGHT TOP TROLLEY ROD	2.850 mm (9'4")

MAINTENANCE

**NOTE: Use the Majestic Car Parts Manual
in conjunction with this section.**

The Azzurra Bumper Car has been designed for hard usage and all parts and components have been selected or manufactured to reduce maintenance to a minimum level. In order to obtain the best performance from the car and long life of the various components, we suggest following the maintenance program described in this section.

AFTER INITIAL FEW DAYS OF OPERATION

- A. Tighten all electrical connections and nuts, including the lock type.

DAILY MAINTENANCE

- A. Check all bulbs. Lights are wired in series so 12 V or 24 V bulbs may be used. If one bulb burns out, all fail. In order to check the location of a burnt out bulb, each headlight is equipped with a warning light and when the light is on, this indicates a burnt out bulb.
- B. Clean and spray the external side of the pneumatic tire with silicon spray, available in aerosol cans or spray bottles. This protection avoids damages due to friction of tire against each other or against the bumper rail around the floor. Normal life of the tire is approximately 9 to 10 years with proper care.
- C. Clean and spray bumper rail with silicon.

WEEKLY MAINTENANCE

- A. Remove the dust which accumulates in the electric motor by blowing out with compressed air, preventing overheating and sparks, between the armature and slip ring.
- B. Grease pedal hinge (237) with switch hinge (235).
- C. In the pedal unit, check if the bolts (236-238-243) are tightened. A loose connection can produce sparks and failure.
- D. Check and maintain pneumatic tire (13) pressure at 11 Kg/cm² (13-16 PSI).
- E. Grease the connection between top of trolley pole (290 AB) rod (270 AB) with a vaseline or equal product.

MONTHLY MAINTENANCE

- A. Check the diameter of the iron rear wheel (259) and clean it with a steel brush. Never use grinders, files or similar tools as they will damage the wheel roundness.

- B. Check the thickness of material in the rear wheel (250 ABCD).
- C. Check the thickness of material in the front drive wheel.
- D. In the pedal unit, check the copper blocks (239-240) and if needed, smooth with a file. We suggest filing blocks after removal from pedal assembly.
- E. Check the thickness of brushes (147) in the double brush holder (126) and clean commutator ring (132) surface with a soft cloth.
- F. Check the thickness of brush (131) in the single brush holder (130), four in the new model and two in the old one.

SIX MONTHS MAINTENANCE

These operations can be delayed or advanced according to the total number of rides per car occurring during this period. The maintenance will be carried out between 20,000 and 25,000 rides. An approximate rider capacity per year per car is as follows:

5 min. cycle time	12 riders per hour
8 hours per day	96 riders per day
100 working days	9,600 riders per day

- A. Check and grease the ball bearing (252-255) in the rear wheels (250 & 259). Use any type of good grade bearing grease.
- B. Check the bearing (113) between the inner housing (114) and outer housing (100) and grease if necessary. Recommended greases are: Vanguard, Likoz, Shell, Alvania 2, Exxon, B P Energrelase LS2, or Multipurpose Grease 42.
- C. Check and grease the gears (111-215) in the motor housing and steering unit.
- D. Check and replace clutch shoes (141-141-A). Later model cars with disc-clutch, normally require disc replacement after 50,000 rides.

ONE YEAR MAINTENANCE

- A. Check transmission unit that is assembled co-axially to electric motor and replace the grease inside according to the following procedure:
1. Disassemble the motor from the car.
 2. Remove the end block (181).

3. Unscrew bolts (188 B) and remove the reduction unit from the transmission case (177).
4. Detach the transmission unit from the clutch (180).
5. Unscrew the bolts (188-A) and remove the transmission cover (179). Now the reduction unit is open. Remove grease and replace with 150 gr. or 5.2 oz. of new

grease. Recommended greases are: Shell, Simnia O, Vanguard, Exxon, and Pen O Led EP 350.

6. Reassemble the unit using opposite procedure, checking carefully the O-ring (189) and washers.

- B. Check and grease the steering column case (228)

TROUBLE CHART

- A. Slight nicks in the front trims:

1. Check the pressure of the tires.



CAUTION: Over inflation may cause severe bouncing between cars and possible injuries to passengers.

- B. If the bumper tire is too close to the floor or drags on the floor:

1. Check the diameter of iron rear wheel (259).
2. Check the diameter of rear wheel (250 ABCD).
3. Check the diameter of front wheel (122 ABCD).
4. Check the rear shock absorber (251). As a temporary procedure, if awaiting arrival of new wheels, place 4 or 5 washers between parts 114/128/181 on each stud 114 A. This will raise the car higher above the floor.

- C. Sparks in the pedal unit:

1. Check insulator (244) and copper block (239-240). We suggest using two insulators (244) instead of one.

- D. The trolley rod is not whipping or whip is too slow:

1. Check the connection between trolley pole (290-AB) and trolley rod (270 AB). Grease with a vaseline or equal product.

- E. Sparks in the trolley rod:

1. Check the spring (279).
2. Check the wear of blade (281) or wire contact (276).

- F. Trolley rod blade (or wire) break:

1. Check the gap between the ceiling panels and panel support rafters. Blades or wires may break if caught in this gap.
2. Lubricate trolley wheel with one drop of lightweight chain oil daily to insure adequate wheel life of approximately 1 season.

NOTE: Light sanding of wheel is recommended monthly to minimize oxidation build-up.

- G. Hard Steering:

1. Check and grease bearing (113) between inner housing (114) and outer housing (100).

- H. Noise from inner housing:

1. Check grease in bearing.
2. Check grease in gear (111-215 AB).
3. Check shock absorber (112).

- J. Steering wheel vibrating:

1. Check shock absorber (112).
2. Check nut (210) for tightness.
3. Check bearing (214 A).
4. Check nylon bushing (214 B).

- K. All cars are not operating:

1. Check fuse in the transformer.
2. Check wire connecting floor with the transformer.
3. Check wire connecting ceiling with the transformer.

- L. One car is not operating:

1. Check brushes (131-147).
2. Check wire to insulator block.
3. Check armature (121 AB).
4. Check fiber insulator plate (133).
5. Check field coils (119-AB).

- M. Noise from the motor:

1. Check clutch shoes (141).

- N. Leakage of grease under motor:

1. Check the transmission unit washers and replace seals. (Proceed as mentioned in the maintenance for one year).

CAUTION: Overfilling will destroy seals. This unit, when empty, requires 150 gr. or 5.2 oz. of grease.

DAILY INSPECTION SCHEDULE

INITIAL APPROPRIATE BLOCK AFTER INSPECTION. DATE: WEEK ENDING MO. _____ DAY _____ YR. _____		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY	COMMENTS
SCOOTER BUILDING	RECTIFIER SPEED SETTING #3								
	ALL FENCE INSTALLED								
	GATES OPERABLE								
	RAMPS AND HINGE PINS INSTALLED								
	RAMP ANTI-SKID								
	RAMP RAILING & SPRING PINS INSTALLED								
	REMOVABLE BUMPER RAIL								
	HYDRAULIC SWITCH OFF								
	FENCE GUARDS INSTALLED (IF APPLICABLE)								
	CONTINUITY								
	CEILING PANELS								
	SAFETY RULES LEDGEABLE								
	SAFETY KEYS								
	EXITS NOT BLOCKED								
BUMPER CAR	SEAT BELTS								
	POLE PAD								
	STINGER HEAD								
	BUMPER TIRE								
	STEERING WHEEL								
	SAVE-A-TOOTH								
	CAR INTERIOR CLEAN								

Majestic

Majestic Manufacturing, Inc. • P.O. Box 128
4300 State Route 7 • New Martinsburg, W. Va. 26051

SUBJECT: BUMPER CAR VELOCITY

NOT FOR REPRODUCTION

This service bulletin must remain with owner's manual. If you have any questions regarding this bulletin, contact the factory at 330-457-2447.

SERVICE BULLETIN

Date: May 8, 1996

S.B. Number: 96-8

Notice:

This service bulletin is to all owner/operators with Majestic Bumper cars and rectifiers. Daily inspections are required on all electrical components and speed selection settings to insure safe operating conditions. Incoming electricity, outside elements, integrity of the floor, ceiling and cars all combine together and must produce a safe operation.

1. Recommended speed setting for floor ceiling type is three (3) on the rectifier or approximately 2 1/2 feet per second for adult cars.
2. Recommended speed setting for floor only type is one (1) to two (2) on the rectifier which will produce 2 feet per second for adult cars.
3. Recommended speed setting for all Mini bumper cars is 1 foot per second.
4. The higher the speed setting the greater the risk for an incident.
5. The owner/operator should exercise prudent judgement on who can and who cannot safely operate the bumper cars.

For additional information regarding the safe operation and maintenance of bumper cars, Majestic offers both training and maintenance procedures.

This service bulletin must remain with owner's manual at all times.

If you have any questions on factory standards or procedures on our equipment contact Majestic Manufacturing, Inc. during business hours 8:00am to 4:30pm Monday through Friday Eastern Standard Time at 330-457-2447.

Majestic

Majestic Manufacturing, Inc. • P.O. Box 128
4536 State Route 7 • New Waterford, Ohio 44445

SUBJECT: MINI BUMPER CAR FLOOR PICK UP

ATTN: OWNER/OPERATOR,

This Bulletin pertains to operation of your Majestic unit. This Service Bulletin **must** remain with owner's manual. If you have any questions regarding this Bulletin, contact our office at (330) 457-2447, M-F 8:00 a.m.-4:30 p.m. E.S.T. • Fax 457-7490

SERVICE BULLETIN

Date: May 1, 1994

S.B. Number: SB91-3 Supplement to service bulletin 91-3

Notice:

MINI BUMPER CARS

Majestic Manufacturing, Inc., is requiring rules on each and every Majestic scooter or facilities with Majestic bumper cars. These safety rules must be visible and legible for every patron prior to their participation.

RECOMMENDED LISTS OF SAFETY RULES

1. Keep all hands and arms inside car.
2. All riders must wear a seatbelt
3. No head on collisions.
4. Stay in car until ride has stopped.
5. You must be taller than 36" to operate cars.
6. Operator has the right to refuse any ticket holder.
7. Advise attendant of any medical conditions.

A note of caution to the owner/operator of a Mini bumper car unit: the rider of this type of unit does not possess the same capabilities as an adult rider. The owner/operator must have sufficient supervising and assistance. Operator discretion is important.

This service bulletin must remain with owner's manual at all times.

If you have any questions on factory standards or procedures on our equipment contact Majestic Manufacturing, Inc. during business hours 8:00am to 4:30pm Monday through Friday Eastern Standard Time at 330-457-2447.

Dedicated to Safety in the Amusement Industry

01/19 '00 06:35
12-2-11
Majestic

Majestic Manufacturing, Inc. • P.O. Box 128
4536 State Route 7 • New Waterford, Ohio 44445

**SUBJECT: SAFETY RULES FOR MAJESTIC BUILDINGS: FP1536, FP1400,
FP1040, TM1400, TM1800, TM1800 EURO, PM2700, INDIVIDUAL BUMPER CAR**

**ATTN: OWNERS
OWNER/OPERATOR,**

This Bulletin pertains to operation of your Majestic unit. This Service Bulletin must remain with owner's manual. If you have any questions regarding this Bulletin, contact our office at (330) 457-2447, M-F 8:00 a.m.-4:30 p.m. E.S.T. • Fax 457-7490

SERVICE BULLETIN

Date: May 1, 1991

S.B. Number: 91-3

Notice:

ADULT BUMPER CARS

Majestic Manufacturing, Inc. is requiring safety rules on each and every Majestic Scooter or facilities with Majestic Bumper cars. These safety rules must be visible and legible for every patron prior to their participation.

RECOMMENDED LISTS OF SAFETY RULES:

1. Keep all hands and arms inside car.
2. Keep shoulder strap on while ride is in operation.
Optional: Keep lap bar in the down position while ride is in operation.
3. No head collisions.
4. Stay in car until ride has stopped.
5. You must be at least (Majestic Recommended Height) 50 inches to operate cars.
6. Operator has right to refuse any ticket holder.
7. Advise attendant of any medical conditions.

This service bulletin must remain with owner's manual at all times.

If you have any questions on factory standards or procedures on our equipment contact Majestic Manufacturing, Inc. during business hours 8:00am to 4:30pm Monday through Friday Eastern Standard Time at 330-457-2447.

Dedicated to Safety in the Amusement Industry

Majestic Manufacturing, Inc.

ORIGINATORS OF THE SUPER SCOOTERS™

P.O. BOX 128, 4536 S. R. 7 - NEW WATERFORD, OHIO 44445
(216) 457-2447 - (216) 457-7280

FEB 18 1991

NUMBER: SB 91-1

DATE: FEBRUARY 13, 1991

SERVICE BULLETIN

SUBJECT: RAISING AND LOWERING MAJESTIC SCOOTER BUILDINGS
TM-1400 TM-1800 TM-1800 EURO TM-2700

NOTICE: MAJESTIC MANUFACTURING, INC., INDICATES IN OWNER'S MANUAL ABOUT SAFE-GUARDS AND HAZARDS OF RAISING AND LOWERING MAJESTIC SCOOTER DECKS. IN ADDITION MAJESTIC WILL BE ISSUING OPERATIONAL PLACARDS ALONG WITH INSTRUCTIONS AND HARDWARE TO BE PLACED ON EACH AND EVERY MAJESTIC SCOOTER. THIS PLACARD IS DESIGNED TO INFORM OWNER/OPERATOR THE CORRECT AND SAFE OPERATION IN ERECTION AND DISMANTELING OF SCOOTER. YOU MAY ORDER THESE PLACARDS FROM MAJESTIC. THEY ARE BEING OFFERED FREE OF CHARGE IF ORDERED WITHIN 90 DAYS OF THIS BULLETIN. AFTER 90 DAYS THE CHARGE WILL BE \$4.00 EACH. YOU ARE REQUIRED TO HAVE 4 PLACARDS FOR EACH SCOOTER BUILDING.

THIS SERVICE BULLETIN MUST REMAIN WITH OWNER'S MANUAL. IF YOU HAVE ANY QUESTIONS REGARDING THIS SERVICE BULLETIN, CONTACT OUR OFFICE AT 216-457-2447 DURING THE HOURS OF 8:00 AM TO 4:30 PM EST.

THANK YOU,

MAJESTIC MANUFACTURING, INC.

Majestic Manufacturing, Inc., 4536 Rt. 7, New Waterford, Ohio 44445
Phone 216/457-2447 — 457-7280 — Telex Majestic 887872 — Fax 216/457-7490

NUMBER: SB 91-2

FEB 18 1991

DATE: FEBRUARY 13, 1991

SERVICE BULLETIN

SUBJECT: FOLDING GOOSENECK MAJESTIC SCOOTER BUILDINGS
TM-1400 TM-1800

NOTICE: MAJESTIC MANUFACTURING, INC., INDICATES IN OWNER'S MANUAL ABOUT THE SAFEGUARDS AND HAZARDS OF RAISING AND LOWERING THE HYDRAULIC GOOSENECK. IN ADDITION, MAJESTIC WILL BE ISSUING OPERATIONAL PLACARDS ALONG WITH THE INSTRUCTIONS AND HARDWARE TO BE PLACED ON EACH AND EVERY MAJESTIC SCOOTER EQUIPPED WITH THIS HYDRAULIC FEATURE. MAJESTIC ALSO STATES ANY MODIFICATION TO FACTORY DESIGN RELIEVES ANY RESPONSIBILITY OF MAJESTIC. YOU MAY ORDER THESE PLACARDS FROM MAJESTIC. THEY ARE BEING OFFERED FREE OF CHARGE IF ORDERED WITHIN 90 DAYS OF THIS BULLETIN. AFTER 90 DAYS THE CHARGE WILL BE \$4.00 EACH. YOU ARE REQUIRED TO HAVE 2 PLACARDS FOR EACH SCOOTER BUILDING.

THIS SERVICE BULLETIN MUST REMAIN WITH OWNER'S MANUAL. IF YOU HAVE ANY QUESTIONS REGARDING THIS SERVICE BULLETIN, CONTACT OUR OFFICE AT 216-457-2447 DURING THE HOURS OF 8:00 AM TO 4:30 PM EST.

THANK YOU,

MAJESTIC MANUFACTURING, INC.

Majestic Manufacturing, Inc.

ORIGINATORS OF THE SUPER SCOOTERS™

P.O. Box 128, 4536 S. R. 7 • NEW WATERFORD, OHIO 44445
(216) 457-2447 • (216) 457-7280

FAX NO. 216-457-7490

FAX NO.

ATTN: RONNIE GREENMAN

PAGE NO. 1 OF 1

COMPANY: BUREAU OF FAIRS & EXPOSITIONS

DATE 4/19/91

COUNTRY:

RONNIE GREENMAN
BUREAU OF PUBLIC FAIRS & EXPOSITIONS
ROOM 1003 TALLAHASSEE, FL 32399

RE: MAJESTIC SCOOTER CANVAS

MAJESTIC SCOOTERS ARE NOT DESIGNED OR ENGINEERED FOR THE TOP CEILING PANELS TO COLLECT AND RETAIN WATER. MINIMAL AMOUNTS OF PRECIPITATION ARE EXPECTED AND CEILING STRUCTURE WILL REMAIN IN TACT WITH THAT SITUATION BUT AS WITH ALL RIDES AGE AND POSSIBLE HIDDEN WEAK POINTS THAT COULD EXIST AND THE POSSIBILITY OF A SUDDEN HEAVY RAIN FALL, ABNORMAL COLLECTION OF THE RAINFALL PRESENTS THE POSSIBILITY THAT A CEILING PANEL COULD FAIL AND EITHER DO DAMAGE TO THE RIDE OR CAUSE INJURY TO A PATRON.

OPERATING A SCOOTER WITHOUT A TOP FOR ANY PERIOD OF TIME PRESENTS THIS RISK TO THE OWNER, PATRON AND THE MANUFACTURER.

REGARDS,

MAJESTIC MANUFACTURING, INC.

VINCE KUDLER

N.D.T. SERVICE MANUAL

89-111

APPLICABLE ONLY TO MAJESTIC SCOOTER BUILDINGS
EFFECTIVE 1-1-90

N.D.T. SERVICE MANUAL

89-111

APPLICABLE ONLY TO MAJESTIC SCOOTER BUILDINGS
EFFECTIVE 1-1-90

THE PURPOSE OF THIS MANUAL IS TO CONFORM TO STATE REQUIRED N.D.T. INSPECTIONS,
AND TO DEVELOP A HIGHER DEGREE OF KNOWLEDGE OF MAJESTIC SCOOTER BUILDINGS TM-1400 /
TM 1800 / TM-2700.

TWO MAJOR FORMS OF N.D.T. IN THIS MANUAL ARE :

- I. Visual
- II. Dye Penetrant

11 MAIN INSPECTION AREAS ARE :

- SECTION 1. ELECTRICAL
- SECTION 2. TRAILER
- SECTION 3. BLOCKING OF UNIT
- SECTION 4. PURLINGS, RAMPS, & DECK
- SECTION 5. BUMPER CARS
- SECTION 6. FENCE
- SECTION 7. POST
- SECTION 8. RAFTERS
- SECTION 9. SCREENS
- SECTION 10. SCENERY
- SECTION 11. CANVAS

MAJESTIC MANUFACTURING INC.

4536 RT. 7 NEW WATERFORD, OHIO 44445 (216) 457-2447 FAX (216) 457-7490

SECTION 1

ELECTRICAL

ELECTRICAL WIRING AND ELECTRICAL COMPONENTS

A. RECOMMENDED, VISUAL INSPECTION OF ALL ELECTRICAL PANELS, COVERS, FIXTURES, AND ELECTRICAL CABLE.

B. PROPER ISOLATION IS OBTAINED BETWEEN FLOOR AND CEILING.

AREAS OF PARTICULAR IMPORTANCE ON :

TM 1400 1. CONNECT TO TYPE OF VOLTAGE REQUIRED

2. KEEP ALL ELECTRICAL COVERS IN PLACE AND ALL SAFETY DEVICES WORKING PROPERLY.

3. PROPER GROUNDING.

TM 1800 1. CONNECT TO TYPE OF VOLTAGE REQUIRED.

2. VISUAL INSPECTION TO INSURE PROPER ISOLATION BETWEEN FLOOR AND CEILING.

3. ALL ELECTRICAL COVERS IN PLACE.

TM 2700 1. CONNECT TO TYPE OF VOLTAGE REQUIRED.

2. PROPER GROUNDING.

3. SUFFICIENT POWER IS SUPPLIED TO OPERATE SCOOTER.

SECTION 2

TM SCOOTER SERIES TRAILER

<u>INSPECTION SITES</u>	<u>CHECK FOR</u>	<u>N.D.T.</u>
A. GOOSENECK KING PIN	SECURE MOUNTING	VISUAL
B. GOOSENECK PIVOT ARMS	FREE FROM CRACK WELDS, ENDCAPS IN PLACE	VISUAL
C. GOOSENECK PIVOT POINT	BROKEN WELDS, EXCESSIVE WEAR	VISUAL
D. GOOSENECK FOLDING PLATE	BROKEN WELDS OR EXCESSIVE WEAR ON PIPE ENDS	VISUAL
E. MECHANICAL JACKS	WORN HOLES FOR ADJUSTABLE PINS	VISUAL
F. SAFETY BAR	FUNCTIONAL AND WITH RTDE	VISUAL
G. DRIVE PINS	FUNCTIONAL AND WITH RIDE	VISUAL
H. WELDMENT FOR DRIVE PINS	BROKEN WELDS OR EXCESSIVE WEAR ON HOLES	VISUAL
I. 1" & 1½" POST NUTS	BROKEN WELDS, WORN THREADS	VISUAL
J. GOOSENECK STABILIZER	BROKEN WELDS ON ATTACHMENT PINS, STABILIZER, FUNCTIONAL	VISUAL
K. MAIN POST INSULATORS	1. SUFFICIENT CLEARANCE BETWEEN STEEL POST AND ALUMINUM CAP 2. WOOD INSULATION TIGHTLY SECURE IN POST 3. DESIGN MODIFICATION UPDATE	VISUAL

SERVICE BULLETIN Q-102 REPLACES WOOD INSULATOR

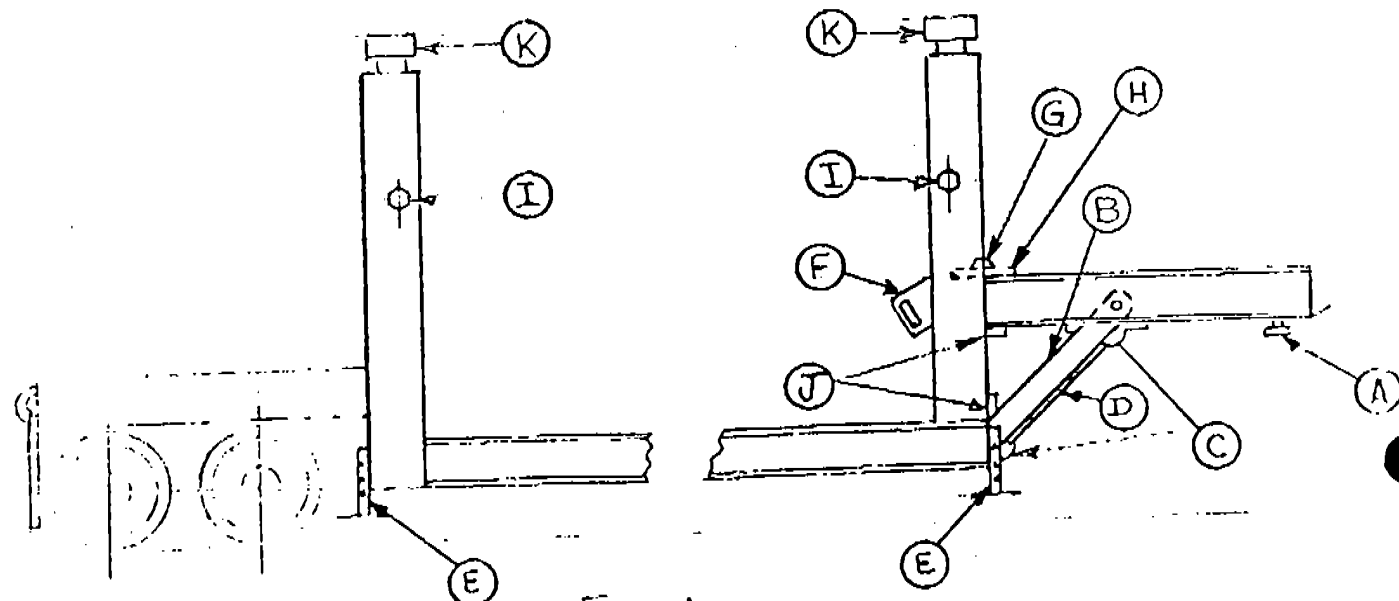


FIG. 1

SECTION 3

TM SCOOTER SERIES

BLOCKING

PROPER BLOCKING OF ANY RIDE IS IMPORTANT. EACH LOCATION SITE BRINGS NEW CHALLENGES TO EVERY OPERATOR. PROPER DISCRETION AND JUDGEMENT IS VITAL TO A SAFE OPERATION.

LISTED BELOW ARE:

A. TOTAL QTY OF BLOCKING POINTS PER UNIT

TM - 1400	QTY - 34
TM - 1800	QTY - 44
TM - 2700	QTY - 68

B. TOTAL WEIGHT OF EACH BLOCKING POINT PER UNIT

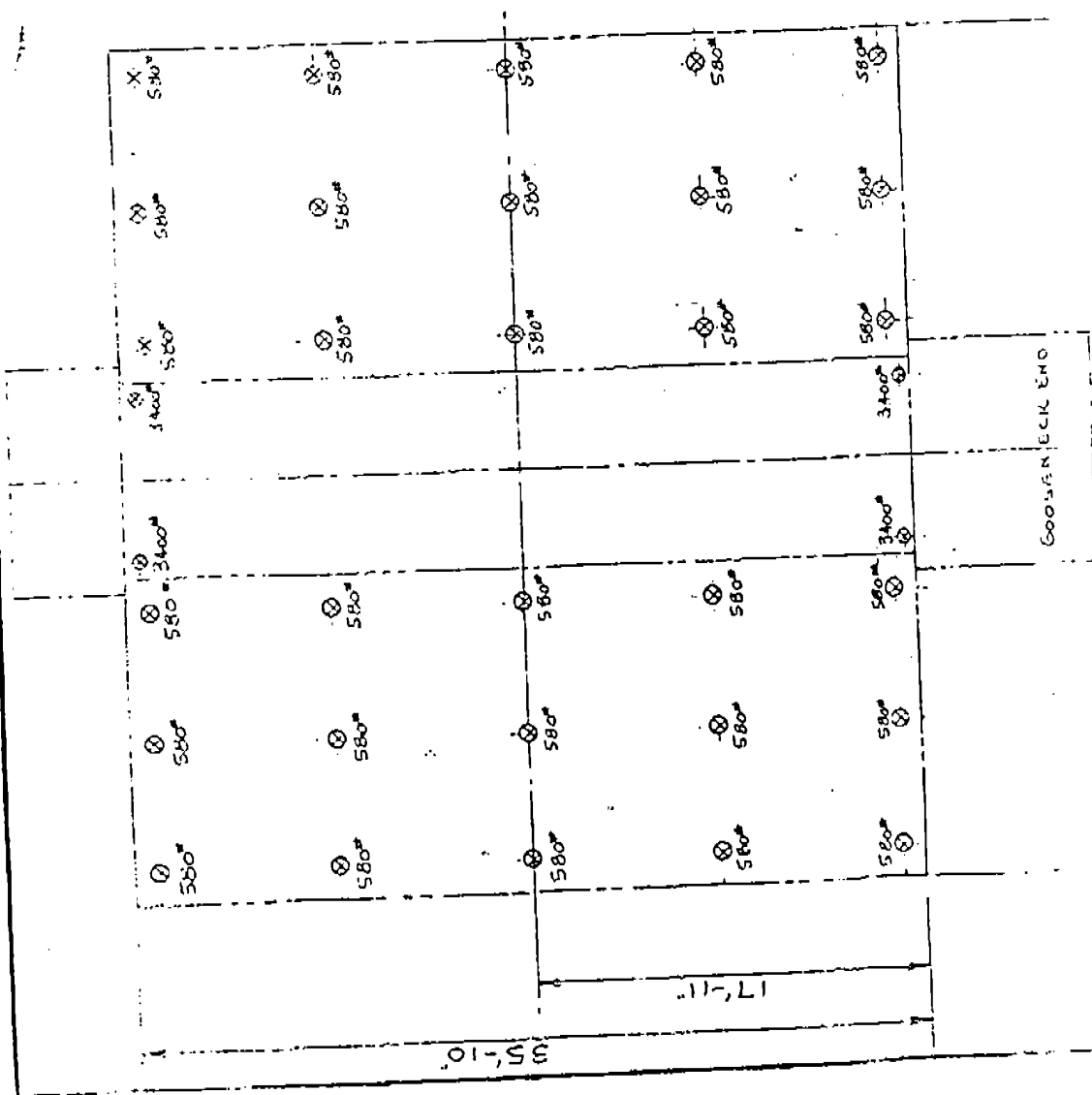
TM - 1400	REF - Q - 201	WT# PER POINT
TM - 1800	REF - Q - 201	WT# PER POINT
TM - 2700	REF - Q - 201	WT# PER POINT

C. HEIGHT RESTRICTIONS FOR CERTAIN BLOCKING TECHNIQUES

PER MAJESTIC MFG. INC. RECOMMENDATION

1. SINGLE BLOCKING UP TO 6"
2. CRIB BLOCKING BEYOND 6" UP TO

NOTE: WEIGHT CALCULATIONS ARE STATE LOADS BASED ON AVERAGE INDIVIDUAL WEIGHT OF 170 LBS PER.



JAN. 1 1990

TOLERANCES (UNLESS OTHERWISE SPECIFIED)		REVISIONS		MAJESTIC MFG., INC.	
DECIMAL	FRACTIONAL	NO.	DATE	BY	453 5TH ST. NEW WATERFORD, PA 15460
1	1	1			MA-1400 SCOOTER
2	2	2			BLUCKING POINT 15409 IN LBS.
3	3	3			DRAWN BY KRB
4	4	4			CHECK 1-4-90
5	5	5			DATE 1-4-90
6	6	6			APPROVED
				TRACED	
				3-201	

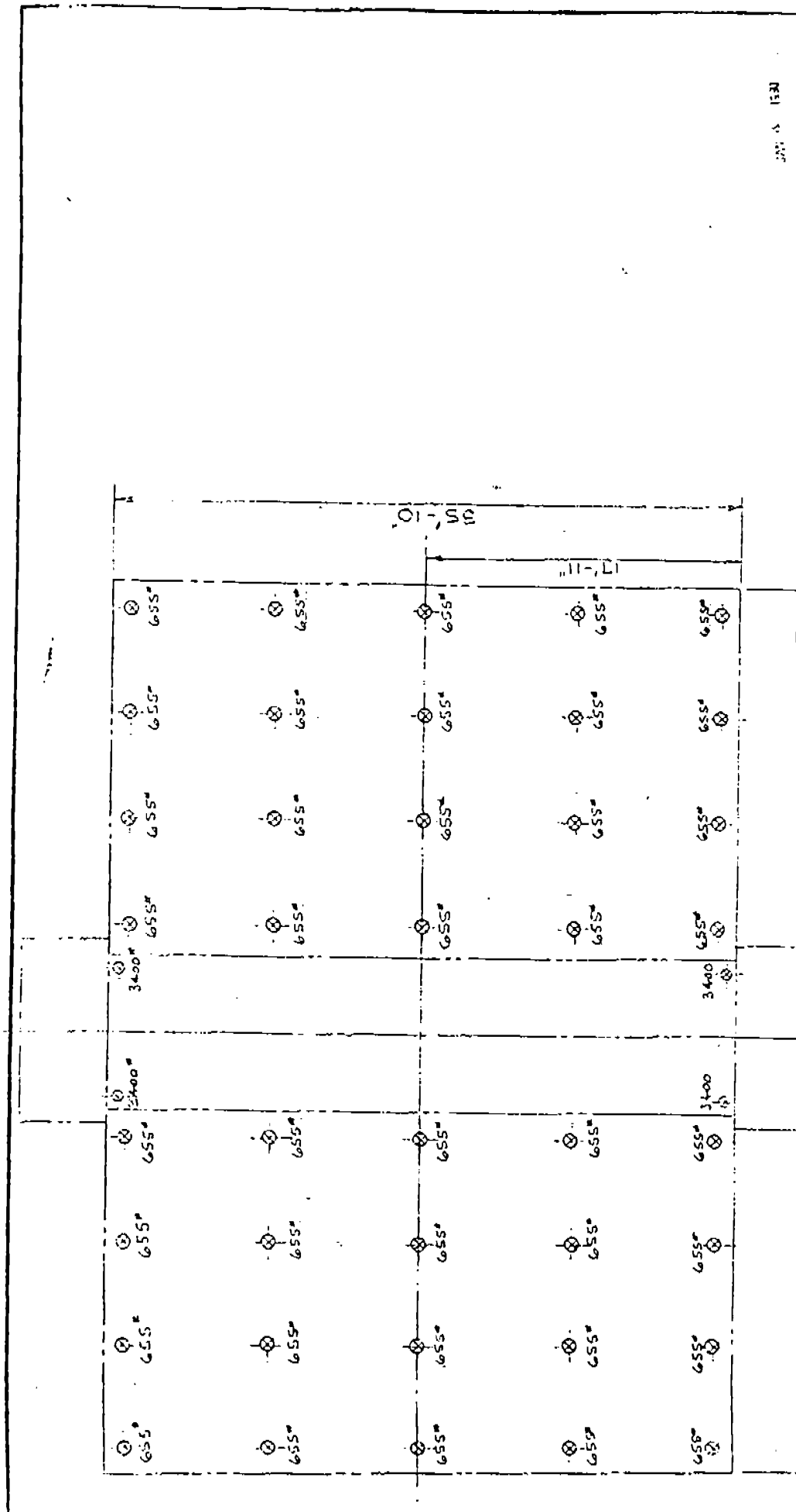
39'-11 3/8"

19'-5 11/16"

GOODMAN ECK END

17'-11"

35'-10"



TOLERANCES		REVISIONS	
NO.	DATE	BY	DATE
1			
2			
3			
4			
5			

MAJESTIC MFG., INC.
 1530 E. 17TH AVE. NEW WATERFORD, OHIO 44665
 TMA-1800 SCOOTER
 BLOCKING POINT LOADS IN LRS.
 DRAWN BY: GRS SCALE: 1/8"=1'-0" MATERIAL: 1/4" PLATE
 CHECKED: DATE: 1-6-91 DRAWING NO.: Q-101
 FACED

9

SECTION 4

SCOOTER SERIES

PURLINGS : DECK : RAMPS

PURLINGS

<u>INSPECTION SITE</u>	<u>CHECK FOR</u>	<u>N.D.T.</u>
A. TM-1400 ; TM-1800	5 LONG PURLINGS PER SIDE	VISUAL
A. TM 2700	6 LONG PURLINGS PER SIDE	VISUAL
B. ATTACHMENT TO TRAILER	EXCESSIVE WEAR ON HOLES AND PINS	VISUAL

DECKS

<u>INSPECTION SITE</u>	<u>CHECK FOR</u>	<u>N.D.T.</u>
C. DECK HINGES	BROKEN WELDS ON 2" SOLID HINGE POINTS	VISUAL
D. DECK HINGES	8' PIANO HINGES, LOOSE OR WORN FASTENERS	VISUAL
E. DECK ROLLERS	FUNCTIONAL AND ROLLS FREE	VISUAL
F. BUMPER RAIL	BROKEN WELDS, MISSING BUMPER RAIL	VISUAL

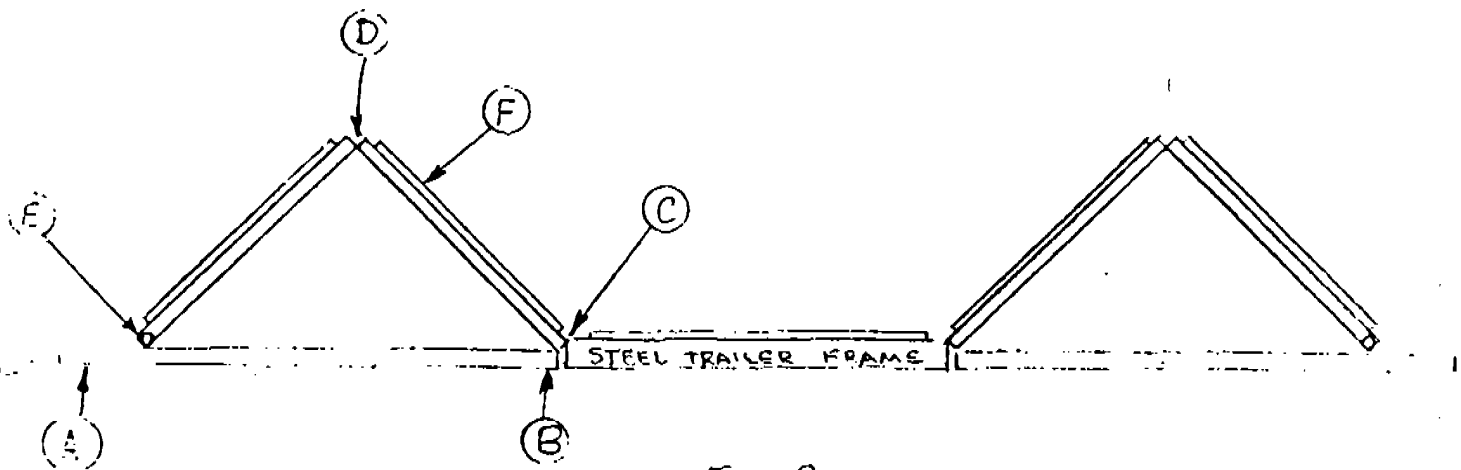


FIG. 2

SECTION 4

SCOOTER SERIES

PURLINGS : DECK : RAMPS

RMTS

INSPECTION SITE

A. FENCE RAMP SOCKETS

B. RAMP SURFACE

C. PIPE ATTACHMENT

D. PIN ATTACHMENT

E. STABILITY OF RAMPS

CHECK FOR

CRACKED OR BROKEN WELDS

ANTI SKID MATERIAL, PRESENT

WORN PIPE, BROKEN WELDS

FUNCTIONAL

PROPER PLACEMENT OF BLOCKING

Revised

N.D.T.

VISUAL

VISUAL

VISUAL

VISUAL

VISUAL

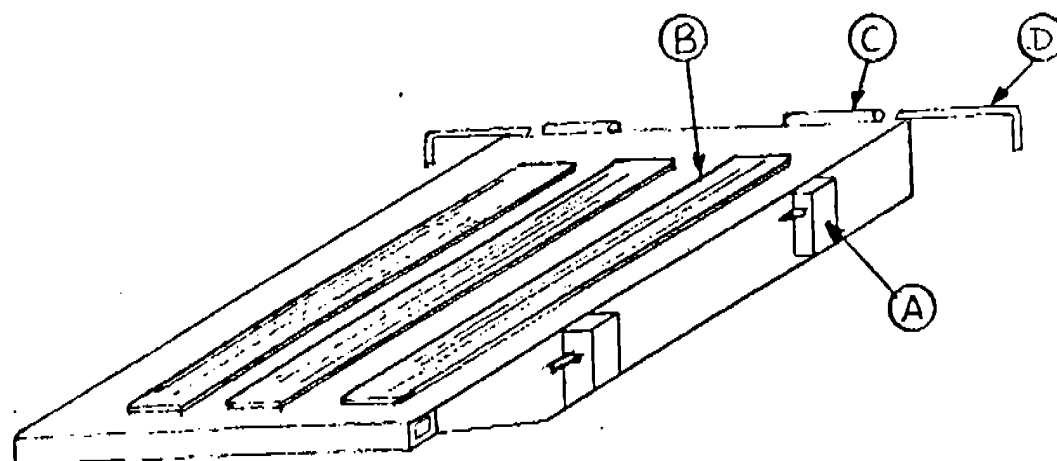


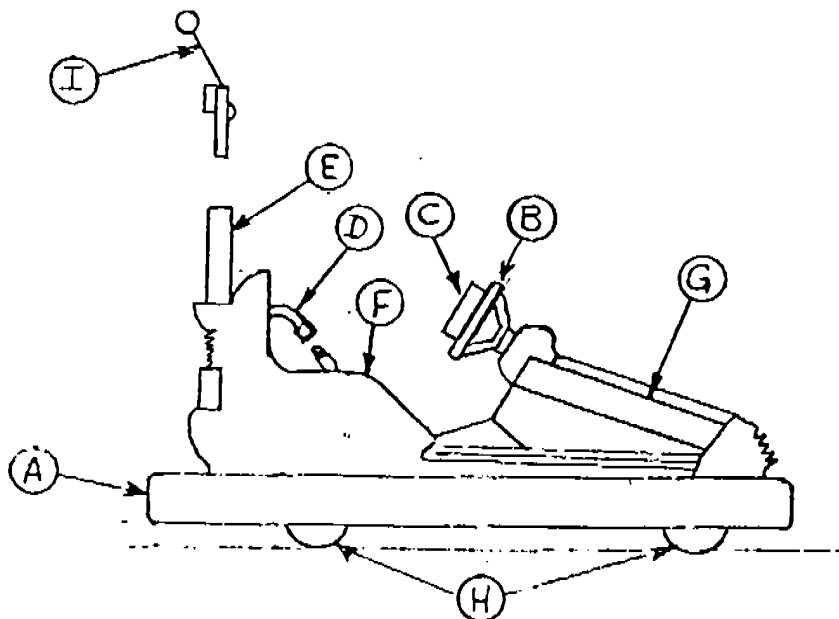
FIG. 3

SECTION 5

MAJESTIC BUMPER CARS

CARS

<u>INSPECTION SITE</u>	<u>CHECK FOR</u>	<u>REMARKS</u>	<u>N.D.T.</u>
A. BUMPER TIRE	PROPER AIR PRESSURE 13 PSI		VISUAL
B. STEERING WHEEL	SECURE AND FUNCTIONAL		VISUAL
C. STEERING WHEEL PAD	SECURE AND FUNCTIONAL		VISUAL
D. SEATBELT	FUNCTIONAL		VISUAL
E. POLE PAD	IN PLACE		VISUAL
F. SEATS	ADEQUATE PADDING		VISUAL
G. TRIM	NO SHARP EDGES		VISUAL
H. WHEELS	PROPER CLEARANCE		VISUAL
I. TROLLEY WHEEL	TROLLEY WHEEL SECURE TO TROLLEY BRACKET		VISUAL

FIG. 4

SECTION 6

FENCE

INSPECTION SITE	CHECK FOR	Remarks N.D.T.
A. FENCE ENDS	BROKEN WELDS	VISUAL
B. FENCE TUBE	BENT OR BROKEN	VISUAL
C. EXPANDABLE METAL PROTECTION IF APPLICABLE	PROPERLY SECURED TO FENCE	VISUAL
D. FENCE	MISSING SECTIONS	VISUAL

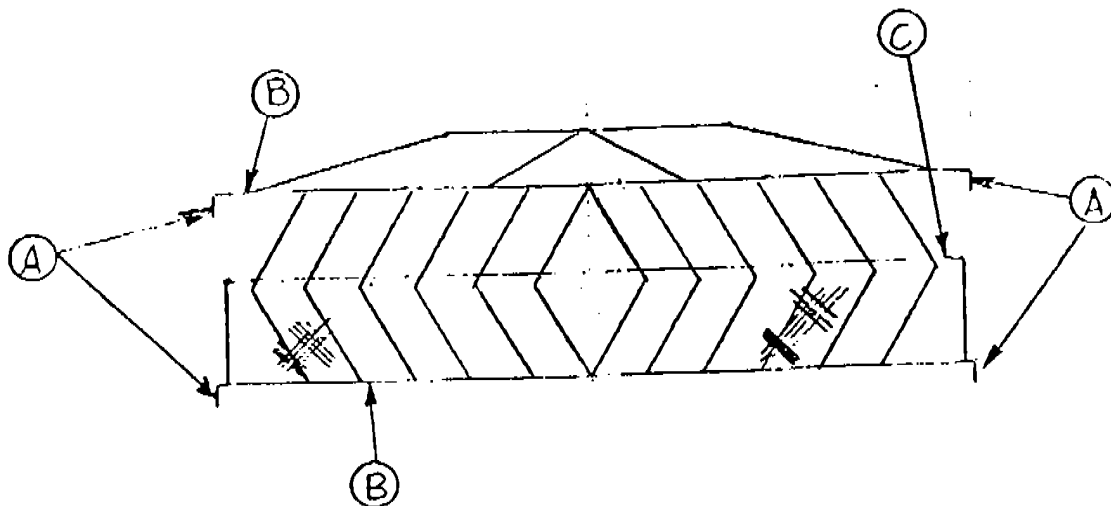


FIG. 5

SECTION 7

POST

STANDARD 3" ALUMINUM

STANDARD 3" POST

<u>INSPECTION SITE</u>	<u>CHECK FOR</u>	Recomm. By A-1000 N.D.T.
A. WOOD INSULATION	SECURE & TIGHTNESS, SUFFICIENT CLEARANCE BETWEEN ALUMINUM	VISUAL
B. POST CAP	BROKEN WELDS, SECURE PINS	VISUAL
C. POST SOCKETS, FENCE CLIPS	BROKEN WELDS	VISUAL
D. POST LIGHT BRACKET	SECURE AND PROPER WIRING	VISUAL
E. POST	MISSING POST, POST SUBSTITUTION	VISUAL

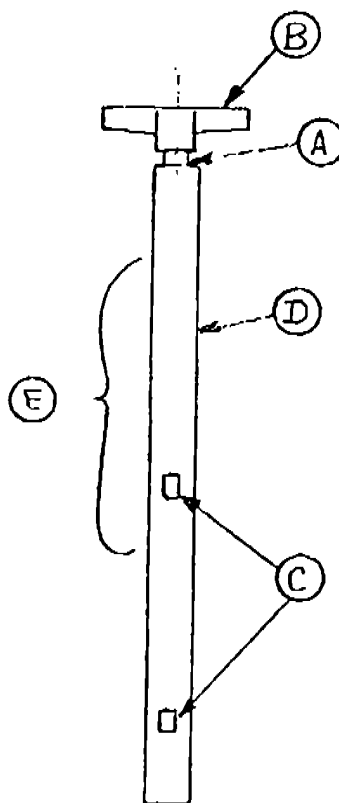


FIG. 6

SECTION 7

POST

EURO 6" X 9" ALUMINUM

EURO 6" X 9" ALUMINUM POST

INSPECTION SITE

- A. NYLON INSULATOR
- B. POST CAP
- C. ALUMINUM FRAME-WORK
- D. POST FENCE SOCKETS
- E. LIGHT BRACKET
- F. BOTTOM POST SOCKETS
- G. POST

CHECK FOR

- BOLTS SECURE
- BROKEN WELDS
- BROKEN WELDS
- BROKEN WELDS
- PROPER WIRING
- BROKEN WELDS
- MISSING POST, POST SUBSTITUTION

REMARKS
N.D.T.

- VISUAL.
- VISUAL.
- VISUAL.
- VISUAL.
- VISUAL.
- VISUAL.
- VISUAL.

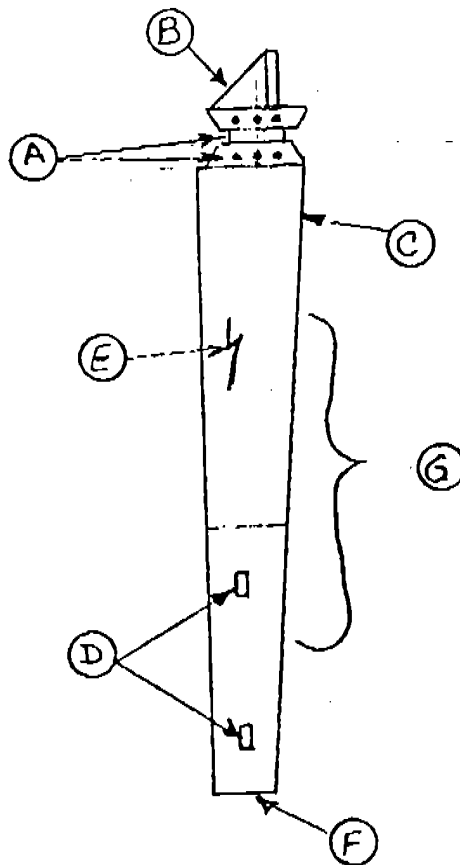


FIG. 7

SECTION 8

RAFTER'S, RAFTER EXTENSIONS

<u>INSPECTION SITE</u>	<u>CHECK FOR</u>	<u>N.D.T.</u>
A. MAIN INSULATOR CAP WELDMENT TO TOP	BROKEN WELDS	DISCRETION OF INSPECTOR REC:DYE PENETRANT ANNUALLY
B. RAFTER EXTENSION ARMS	BROKEN WELDS, PINS	DISCRETION OF INSPECTOR REC:DYE PENETRANT ANNUALLY
C. RAFTER AND WELDMENT	BROKEN WELDS	DISCRETION OF INSPECTOR REC:DYE PENETRANT ANNUALLY
D. TOP STRUCTURE BOTTOM TUBES	BROKEN WELDS	VISUAL
E. RAFTER	EXCESSIVE ABUSE, BENT	VISUAL

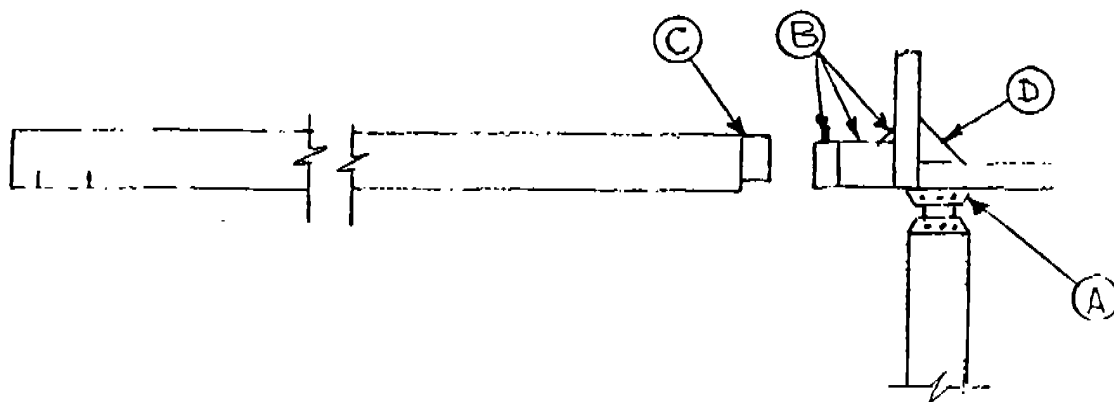


FIG. 8

SECTION 8

TM-2700 RAFTER'S

INSPECTION SITE

- A. SUPPORT BRACES
- B. DOVE TAILS
- C. FOLDING HINGES
- D. CANVAS ROD

CHECK FOR

- MISSING SUPPORT ARM
- BROKEN WEILDS
- BROKEN HINGES, POPRIVETS
- BENT OR MISSING ROD

N.D.T.

- VISUAL
- DISCRETION OF INSPECTOR
- REC:DYE PENETRANT ANNUALLY
- VISUAL
- VISUAL

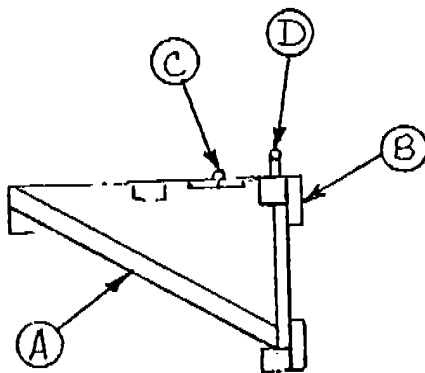


FIG. 8 A

SECTION 9

FOLDING CEILING PANEL'S

SCRTNS

INSPECTION SITE	CHECK FOR	Remarks N.D.T.
A. MAIN SCREEN HINGE ATTACHMENT	BROKEN HINGE OR FASTENERS	VISUAL
B. SECONDARY SCREEN HINGE ATTACHMENTS	BROKEN HINGE OR FASTENERS	VISUAL
C. GUIDE SUPPORT ROLLERS	SECURE AND FUNCTIONAL	VISUAL
D. CEILING PANELS	SECURELY ATTACHED, NO GAPING HOLES	VISUAL
E. CEILING	EXCESSIVE BUILD UP, PITTING	VISUAL

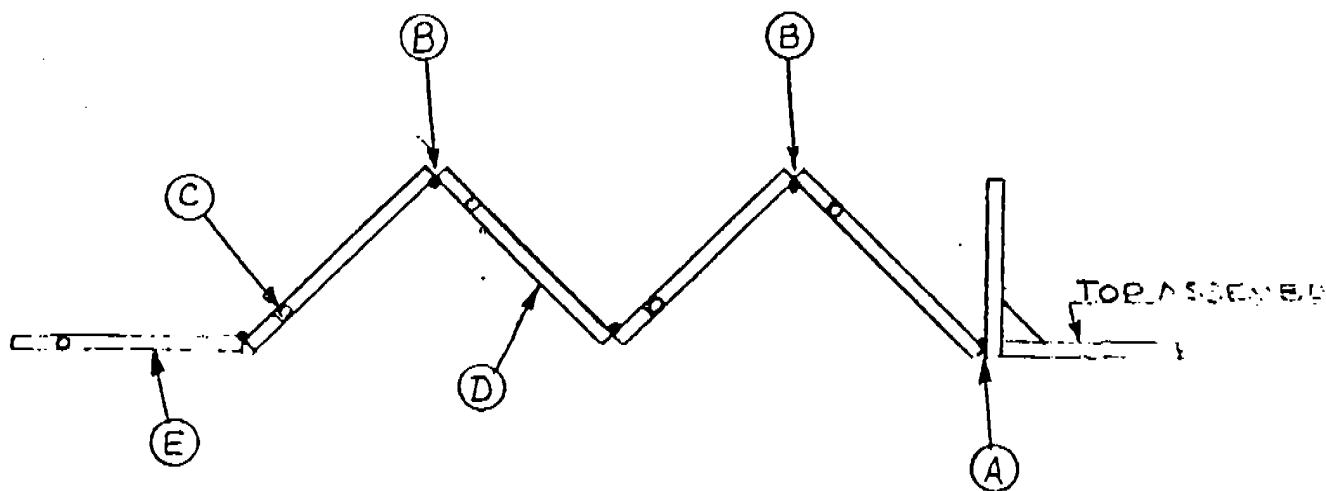


FIG. 9

SECTION 10

SCENERY PANELS

SCENERY

INSPECTION SITE	CHECK FOR	N.D.T.
A. SCENERY PINS	BROKEN WELDS	DISCRETION OF INSPECTOR
B. PLANO HTNGES	BROKEN HINGES POPRIVETS	REC: DYE PENETRANT ANNUALLY
C. SHOCKS	IN PLACE	VISUAL
D. WIRING	SECURE	VISUAL
E. PLUGS	BARE OR BROKEN WIRES	VISUAL
	WIRED CORRECTLY AND SECURE	VISUAL

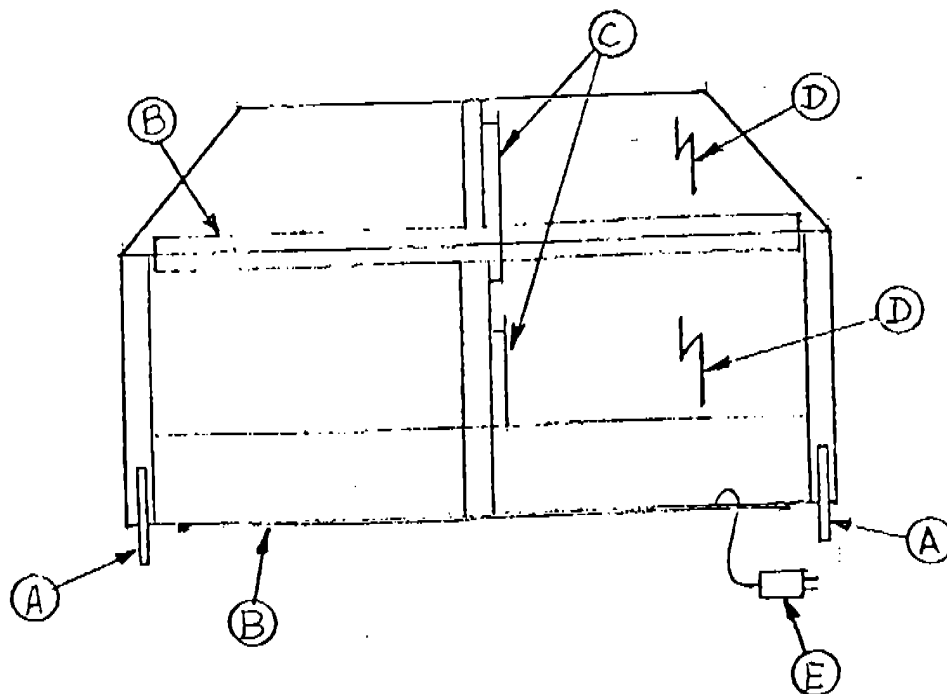


FIG. 10