

MFG: FLOYD & BARTER  
RIDE: SCOOTERS

OWNER/OPERATOR'S RESPONSIBILITY - OPERATION PROCEDURES

4.1 Each owner/operator of an amusement ride or device shall read and become familiar with the contents of the manufacturer's recommended operating instructions and specifications, when received as provided in 3.1. Each owner/operator shall prepare an operating fact sheet. This fact sheet shall be made available to each ride or device operator and attendant of the amusement ride or device. The owner's/operator's fact sheet (on a ride-to-ride basis) shall include but not be limited to:

*MFG 15  
Inc.*

4.1.1 Specific ride or device operation policies and procedures with pertinent information from the manufacturer's instructions.

4.1.1.1 Description of the ride or device operation.

4.1.1.2 Duties of the specific assigned position of the ride or device operator or attendant.

4.1.1.3 General safety procedures.

4.1.1.4 Additional recommendations of the owner/operator.

4.1.2 Specific emergency procedures in the event of an abnormal condition or an interruption of service.

4.1.3 The owner/operator shall provide training for each ride or device operator and attendant of an amusement ride or device. This training shall include but not be limited to the following, where applicable:

4.1.3.1 Instructions on ride or device operating procedures.

4.1.3.2 Instructions on specific duties of the assigned position.

4.1.3.3 Instructions on general safety procedures.

4.1.3.4 Instructions on emergency procedures.

4.1.3.5 Demonstration of the physical ride or device operation.

4.1.3.6 Supervised observations of the ride or device operator's physical operation of the ride or device.

- 4.1.3.7 Additional instructions deemed necessary by the owner/operator.
- 4.1.4 The ride or device operator of each amusement ride or device shall conduct a daily pre-opening inspection of each ride or device prior to carrying passengers. This inspection shall include but not be limited to the following:
- 4.1.4.1 Visual check of all passenger-carrying devices, including restraint devices and latches.
  - 4.1.4.2 Visual inspection of entrances, exits, stairways, and ramps.
  - 4.1.4.3 Test of all communications equipment necessary for the operation of the ride or device.
  - 4.1.4.4 Prior to carrying passengers, the ride or device shall be operated for a minimum of one complete operating cycle.

## SPECIAL CAUTION

The most important safety requirement on this ride is a well trained, alert operator. You must always remember this ride is not a product designed for use by an untrained person. Failure to do so could result in a severe personal accident. Many hours of direct training on the operation of this ride are mandatory before any individual can be allowed to take full responsibility. It is mandatory for the operator to be intimately familiar with this manual.

It is our philosophy that accidents are not acceptable as they represent human suffering and property damage which are preventable through proper management.

## CAUTIONS

1. Be intimately familiar with this manual and properly trained before attempting to operate this ride. Do not loose this manual. Its 1987 replacement cost is \$25.00.
2. This ride is electrically grounded. This helps prevent a person from being shocked should a short develop in the ride. This also produces a very dangerous condition. Should you touch a live wire and grounded ride, you may be killed even though it is only 110v and you are young and healthy. Therefore, ALWAYS, ALWAYS DISCONNECT the main power source before doing anything which might bring you in contact with anything electrical.
3. This ride is heavy moving machinery. Should you or anyone else be hit or become tangled in its machinery, the results will be worse than you expect.
4. Anything happening on or near this ride is your responsibility. Your not seeing anything is no excuse. Be extra alert at all times.
5. Always listen for any unusual noise from your ride. Should you hear or notice anything unusual, stop the ride and immediately contact your supervisor before attempting further operation.
6. Be polite and cautious even when customers are not. Your attitude has a major effect on safety on this ride.
7. Always allow plenty of time to complete all pre-opening and closing procedures. Keep your ride area clean and orderly.
8. In case of an accident, even a very small one:

- a. stop the ride
  - b. get help (office or supervisor)
  - c. aid the injured as best you can
  - d. stay calm
  - e. control crowds
  - f. when help arrives, assist them
  - g. remember the facts---don't gossip---you will have plenty of time to tell the real story at a later time
9. Always make absolutely certain everyone is properly seated and strapped in before starting the ride.
  10. Check carefully that everyone is clear of the ride and outside the fence before starting the ride.
  11. Do not let anyone climb on, play on, or lean over the fence.
  12. Keep the fence a safe distance from the ride.
  13. Use common sense.
  14. Understand that everything inside the fence is your personal responsibility.
  15. Should there be an accident and you even had beer on your breath, had been drinking, or were taking any type of illicit drugs, you could be charged with a felony and sentenced to prison.
  16. When erecting or dismantling a ride, most injuries occur because:
    - a. something falls on someone
    - b. someone slips and falls
    - c. something touches a high voltage line

Remember, the wires on the regular wooden poles often carry 7200 volts.

17. Preventing a child from being injured is by far your most important job.
18. Periodic factory safety bulletins---put these into effect immediately and add them to this book.
19. When you leave the ride turn power off.
20. Be cautious and ready for the unexpected when dealing with children.

NEVER ALLOW A CHILD TO GET IN FRONT OF A MOVING AMUSEMENT RIDE VEHICLE. IT COULD RESULT IN A SERIOUS INJURY OR DEATH.

CAUTION: Never ride anyone without the proper seat restraint.

CAUTION: Never let anyone lean over or sit on the fence while the ride is in motion.

CAUTION: Never operate the ride without watching the ride while in motion.

CAUTION: Never operate the ride while anyone not on the ride is inside the fence.

#### PERSONAL CONDUCT

The following should not be permitted while operating a ride:

1. Any use of alcohol or illicit drugs.
2. Eating, smoking, or drinking beverages at the ride.
3. Failure to follow the instructions of your supervisor.
4. Failure to follow standard operating procedures and safety rules.
5. Arguing or using profanity in front of customers.
6. Leaving the ride unattended.
7. Listening to radios or tape players.
8. Visiting or having long conversations with others.

#### AVOIDING LAW SUITS

In addition to providing a safe operation, a little PR can go a long way in preventing a minor injury from becoming a major law suit. We recommend you train your employees in the art of being courteous, helpful and considerate to anyone with even the slightest injury. Employees should immediately notify their supervisors so that they may show additional extraordinary consideration to make absolutely certain that the injured party and friends know that you are concerned and have done everything possible to keep the injury from spoiling a day of fun.

## OWNER/OPERATOR'S RESPONSIBILITY - MAINTENANCE

- 4.1 Each owner/operator of an amusement ride or device shall read and become familiar with the contents of the manufacturer's maintenance instructions and specifications when received, as provided in 3.1. Based on the manufacturer's recommendations, each owner/operator shall implement a program of maintenance, testing, and inspections providing for the duties and responsibilities necessary in the care of each amusement ride or device. This program of maintenance shall include a checklist to be made available to each person performing the regularly scheduled maintenance on each ride or device. The owner/operator's checklist (on a ride-to-ride basis) shall include but not be limited to:
- 4.1.1 Description of preventive maintenance assignments to be performed.
  - 4.1.2 Description of inspections to be performed.
  - 4.1.3 Special safety instructions, where applicable.
  - 4.1.4 Any additional recommendations of the owner/operator.
- 4.2 The owner/operator of the amusement ride or device shall provide training for each person performing the regularly scheduled maintenance on the ride or device, pertaining to their duties. This training shall include, but not be limited to the following:
- 4.2.1 Instruction on inspection and preventive maintenance procedures.
  - 4.2.2 Instruction on the specific duties of the assigned position.
  - 4.2.3 Instruction on general safety procedures.
  - 4.2.4 Demonstration of the physical performance of the assigned regularly scheduled duties and inspections.
  - 4.2.5 Supervised observation of the maintenance person's physical performance of their assigned regularly scheduled duties and inspections.
  - 4.2.6 Additional instructions deemed necessary by the owner/operator.
- 4.3 Prior to carrying passengers, the owner/operator shall conduct or cause to be conducted a daily documented and signed pre-opening inspection, based on provided instructions, to insure the proper operation of the ride or device. The inspection program shall include, but not be limited to the following:

- 4.3.1 Inspection of all passenger-carrying devices, including restraint devices and latches.
  - 4.3.2 Visual inspection of entrances, exits, stairways, and ramps.
  - 4.3.3 Functional test of all communication equipment necessary for the operation of the ride.
  - 4.3.4 Inspection or test of all automatic and manual safety devices.
  - 4.3.5 Inspection or test of all brakes, including service brakes, emergency brakes, parking brakes, and back stops.
  - 4.3.6 Visual inspection of all fencing, guarding, and barricades.
  - 4.3.7 Visual inspection of the ride structure.
  - 4.3.8 The ride or device shall be operated for a minimum of one complete operating cycle.
- 4.4 Following an unscheduled cessation of operation, and the unloading of an amusement ride or device, necessitated by malfunction, adjustment, environmental conditions, mechanical, electrical, or operational modification, that affected the operation, the ride or device, or the specifically affected element, shall be appropriately inspected, and operated, without passengers, to determine that the cause for cessation of operation has been corrected and does not create an operational problem.

#### OWNER/OPERATOR'S RESPONSIBILITIES - INSPECTION

- 4.2.1 Owner/operators of amusement rides or devices shall have an inspection program consistent with the inspections outlined in Practices F770 and F853.
- 4.2.2 Inspection documents deemed appropriate by the owner/operator to be maintained in the ride file shall be filed according to the procedures outlined in Practices F770 and F853.
- 4.2.3 The owner/operator of an amusement ride or device shall promptly notify the manufacturer of an incident, failure or malfunction which, in his judgment, seriously affects the continued proper operation of the ride or device and is information of which the manufacturer should be aware.

SAMPLE GUIDE FOR OUTSIDE AMUSEMENT RIDE SAFETY OFFICERS  
(INSPECTORS)

A. INVOLVE MANAGEMENT

1. Require the owner, manager or whoever is in the real position to control safety to accompany the inspector during the complete inspection at least once per season.
2. Require the ride foreman to be there during the inspection.
3. Make certain the ride foreman has access to the ride manual and understands everything in the manual.

B. THE INSPECTION

1. Check all passenger restraints for operation and mechanical condition.
2. Make certain the seat will stay on the ride. Check:
  - a. pins and safety pins
  - b. bolts and nuts
  - c. bearings and shafts
  - d. wheels
  - e. cracks in sweeps
  - f. anything repaired or homemade
3. Check guards, fence and other devices to protect the public and the operator from the machinery.
4. Go over your prepared list to see if there is anything that this particular ride needs checked.
5. Interview the foreman with three goals in mind:
  - a. to teach safety to the foreman
  - b. to learn more yourself
  - c. to improve safety attitude and knowledge in the management.

NOTE: The interview should be friendly, cooperative and informal. The following items should be covered

1. What could be done to make this ride safer mechanically?
2. Does he understand that all safety inside the fence is his personal responsibility?
3. What could be done to make this ride safer from an operational point of view?

4. Ask him how he knows if the ride has problems ... does he listen for sounds? What if it jerks or jumps? To whom would he report anything unusual?
5. What would he do if someone got hurt on his ride? What if he got a drunk customer? What if he had some customers get in a fight?
6. Is he aware that his ride is electrically grounded? This makes the ride less likely to shock him or his customers. Warn him that a grounded ride is much more dangerous if anyone touches a live wire and the ride at the same time. It is just like holding a bathroom faucet and touching a live wire. It really can kill you... Because the ride is grounded so well, 110 volts can be much more dangerous than much higher voltage under different circumstances.
7. Explain that should there be an accident and even if he had beer on his breath or taken any illicit (non-prescription) drugs, he could be charged with a felony. That is very serious.
8. Ask how often he inspects the ride. Suggest a couple of times a day. Teach him the first four points of your inspection.
9. For carnivals:
  - a. new DOT laws
  - b. sleeping under trucks
  - c. cranes and high voltage
  - d. falling while erecting or fixing rides

#### C. OWNER/MANAGER MEETING AFTER INSPECTIONS

Try to encourage them to become a couch-counselor, emphasizing the following:

1. Give your workers a chance to do their job with pride.
2. Make certain they know their job.
3. Make your workers feel important and contributing.
4. Take steps to reduce employee turnover.
5. Listen and learn from your workers.
6. Most accidents are the result of a chain of relatively unimportant situations.

#### D. As a safety inspector, your job is accident prevention in its broadest concept.

1. Apply your efforts to those areas most likely to prevent accidents.
2. Help, don't hinder, the profitability of the ride operation. A profitable ride operation is invariably a safer operation.

## GENERAL GUIDELINES

### OPERATOR SELECTION AND INSTRUCTION

1. Select competent, mature operators capable of understanding the function and use of amusement rides and their control.
2. Instruct each operator fully in the proper use and function of the ride he is to supervise, including:
  - A. Controls and procedures for normal and emergency operation.
  - B. Manufacturer's recommended maximum load.
  - C. Manufacturer's recommended length of ride time.
  - D. Any foreseeable misuse of the ride as determined by the manufacturer or owner, or by special conditions such as weather, location or crowds.
  - E. Each operator must have IMMEDIATE AVAILABILITY and a complete working knowledge of the manufacturer's operator's manual for the ride he supervises.
3. Require each operator to inspect the ride he supervises on each day of operation.
  - A. Determine that no portion of the ride is damaged, omitted or worn in such a manner that it is unsafe or that may develop into an unsafe condition.
  - B. Report any irregularities to superintendent or owner.
  - C. Do not operate the ride if any irregularities are found until such condition is corrected.
4. Instruct the operator to allow no passenger to ride who is visibly ill or under the influence of drugs or alcohol.
5. Instruct operators and attendants on the proper methods of securing passengers in the ride. Do not allow a passenger in the ride who cannot be properly secured due to passenger size or because of malfunction of the securing device.
  - A. Stop the ride immediately if any passenger is observed tampering with any restraining device or behaving dangerously, such as standing up.
6. Advise the operator against starting or operating the ride while any person (passenger, spectator, or employee) is in an endangered or unsafe position on the ride or within the ride area.

7. Insist that each operator remain in full control of the operating controls during operation of the ride, and give his full attention to the ride and its passengers.
8. Instruct operator to allow no other person, other than another trained operator, to operate the controls of the ride.
9. Instruct operator and attendants fully as to the proper method of assembly and disassembly of portable rides. Supply adequate personnel and equipment to do this safely.
10. Instruct operator to inspect and correct or replace damaged, lost or worn parts that are unsafe or that may develop into unsafe parts simultaneously with assembly or disassembly.
11. Advise operator of owner/supervisor procedure for assisting ill or injury passengers.
12. Advise operator that factory-installed safety devices are not to be tampered with or removed.
13. Instruct operators and attendants that patrons are required to secure all loose articles such as keys, change, eye glasses, etc.
14. We recommend that every operator take a first aid course after their first season.

# DUCE BUMPER CAR

## PARTS BULLETIN

EXSACO CORPORATION IS NOW OFFERING THE FOLLOWING MAINTENANCE KITS FOR DUCE BUMPER CARS:

Pedal Rebuilding Kits, Part No. 750

Kit includes: 5-#217, 1-#716, 1-#721, 6-#218, 1-#717,  
1-#723, 4-#344, 1-#718, 1-#724, 2-#711,  
2-#719, 1-#725, 1-#715, 1-#720, 1-#726

\*PRICE \$8.75

Motor Brush Kits, Part No. 375

Kit includes: 2-#203, 2-#204, 1-#312, 1-#314, 2-#320,  
2-#339, 1-#313

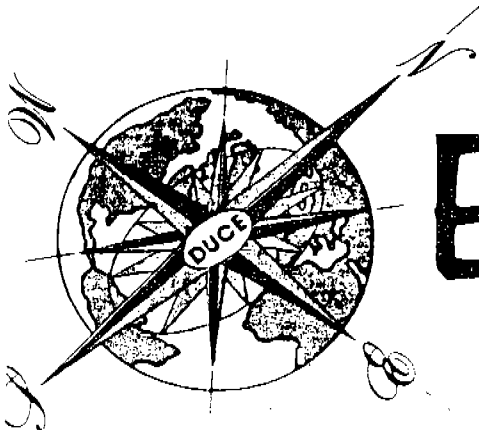
\*PRICE \$28.75

Transmission Seal Kits, Part No. 475

Kit includes: 1-#410, 2-#412, 1-#420, 1-#422

\*PRICE \$5.75

\*Price subject to change without notice.

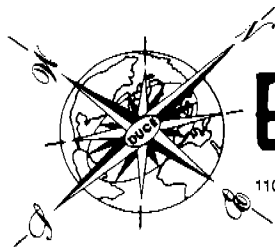


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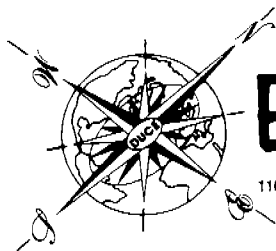


PLATE 1 - INNER AND OUTER HOUSING DETAILS

PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
101	Outer Housing	1
102	Inner Housing (Includes #220 studs)	1
103	Mounting Block (Rubber)	4
104	Ball Bearings (Set of 69)	1
105	Steering Ring Gear	1
107	Hex Bolt	8
109	Hex Lock Nut (use with 107/220)	12
110	Allen Head Bolt (mounts 101 to 103)	4
111	Hex Lock Nut (use with 110)	4
112	Hex Bolt, Grounding	1
113	Wire Clamp (holds 205 in place)	2
114	Drive-type Screw (mounts 113)	2
115	Lock Washer (use with 110/111)	4
116	Lock Washer (use with 107/109/220)	12

PLATE 2 - COMMUTATOR DETAILS

PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
200	Commutator, Complete (incl. 201/203/204/207/208/221)	1
201	Commutator Housing	1
202	Machine Screw (use with 201/101)	2
203	Single Brush Holder	1
204	Carbon Brush with Wire	1
205	Power Wire (use with 200/212)	1
206	Dust Shield	1
207	Insulator Tube	1
208	Rod Support	1
209	Bearing	1
210	Hex Nut	1
211	Jamb Nut	1
212	Contact Assy., Complete (incl. 213/214/215/216/217/218)	1
213	Commutator Bolt, Brasshead	1
214	Insulator Washer, Large	1
215	Insulator Tube	1
216	Insulator Washer, Small	1
217	Flat Washer	3
218	Hex Nut	2
109	Hex Lock Nut (use with 220)	4
220	Stud, Modified for Replacement (use with 102)	4
221	Hex Bolt (use with 201/208)	1
116	Lock Washer (use with 220)	4



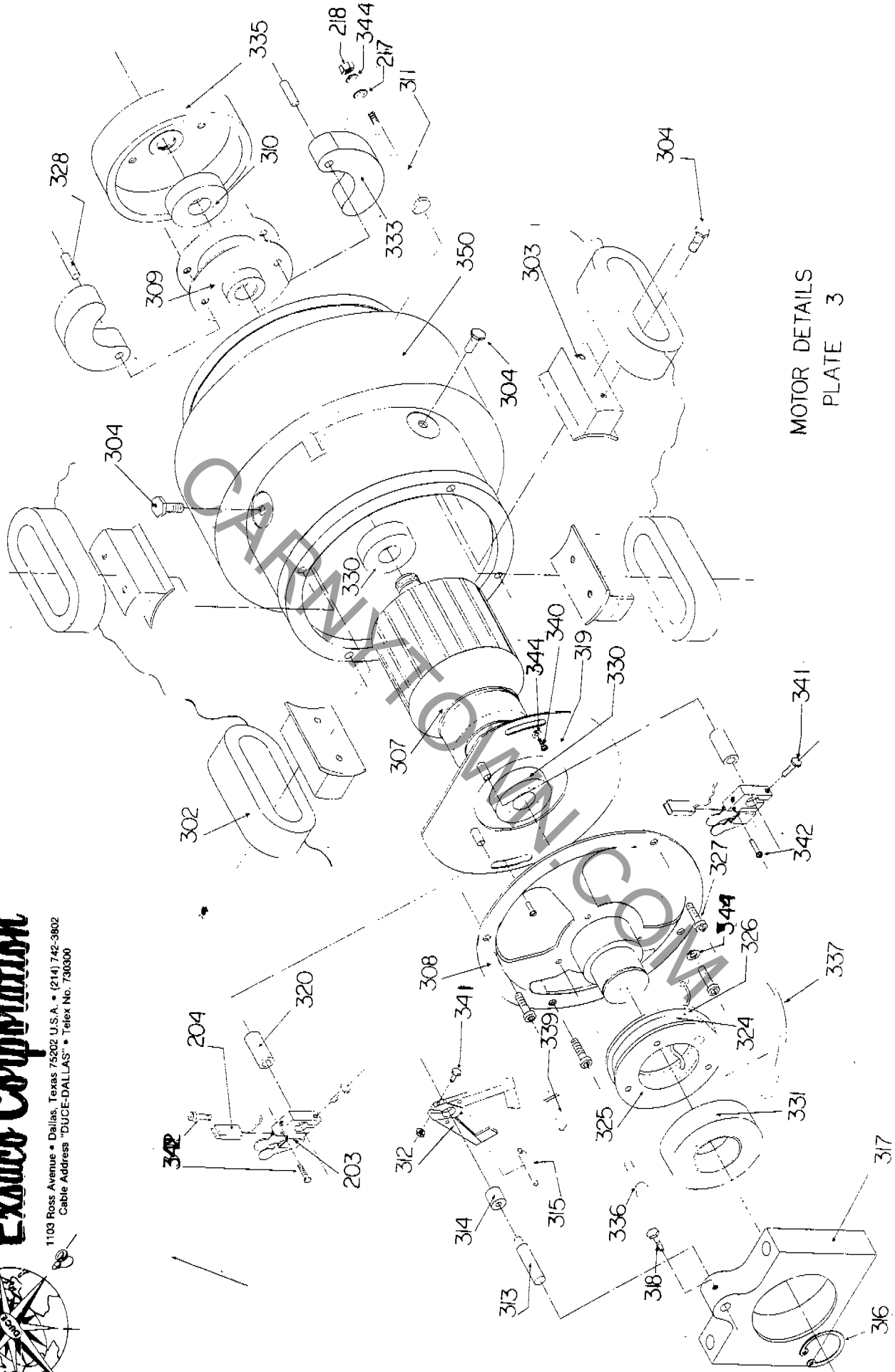
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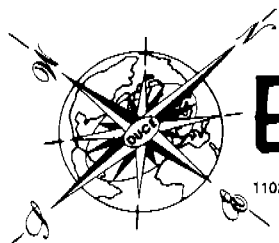


MOTOR DETAILS  
PLATE 3

PLATE 3 - MOTOR DETAILS

PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
301	Drive Unit, Complete (incl. 350/317/423/401) [motor]	1
301B	Drive Unit, Complete, rebuilt (when available)	1
302	Field Coils (4 connected)	1
303	Laminated Block	4
304	Hex Bolt (use with 303)	8
307	Armature	1
307B	Armature, Rebuilt (when available)	1
308	Bell Housing	1
309	Clutch Shoe Holder	1
310	Bearing (use with 309)	1
311	Wheel Bolt	4
312	Double Brush Holder (uses brush 339)	1
313	Stud (use with 312)	1
314	Insulator	1
315	Spring (use with 312)	2
316	Snap Ring, Expansion (use with 317)	1
317	Motor Mounting Block (use with 308/220/102)	1
318	Hex Bolt (use with 317/313)	1
319	Brush Plate Mounting (use with 203)	1
320	Insulator (use with 319/203)	2
324	Commutator Ring	1
325	Insulator, with 4 holes	1
326	Insulator, with 3 holes	1
327	Allen Bolt	4
328	Clutch Shoe Retaining Pin (use with 309/333)	2
330	Bearing, Sealed (use with 307)	2
331	Bearing, Sealed (use with 317/308)	1
333	Clutch Shoe (use pin 328)	2
335	Flywheel, Clutch	1
336	Machine Screw (for slip ring assembly)	3
337	Insulator (used between 326 and 308)	1
338	Clutch Shoe Assy. (incl. 1-309/2-328/2-333)	1
339	Carbon Brush (use with 312)	2
340	Machine Screw (for brush plate)	2
341	Bolt (use with 203/312)	3
342	Bolt (use with 203)	2
344	Lock Washer	2
350	Drive Wheel	1
350B	Drive Wheel, Retread (when available)	1
203	Single Brush Holder (uses brush 204)	2
204	Carbon Brush with Wire (use with 203)	2
217	Flat Washer	4
218	Hex Nut	4
375	Motor Brush Kit (incl. 2-203/2-204/1-312/1-314/ 2-320/2-339/1-313)	1

NOTE: Trade in allowance is given on used motors, if complete.



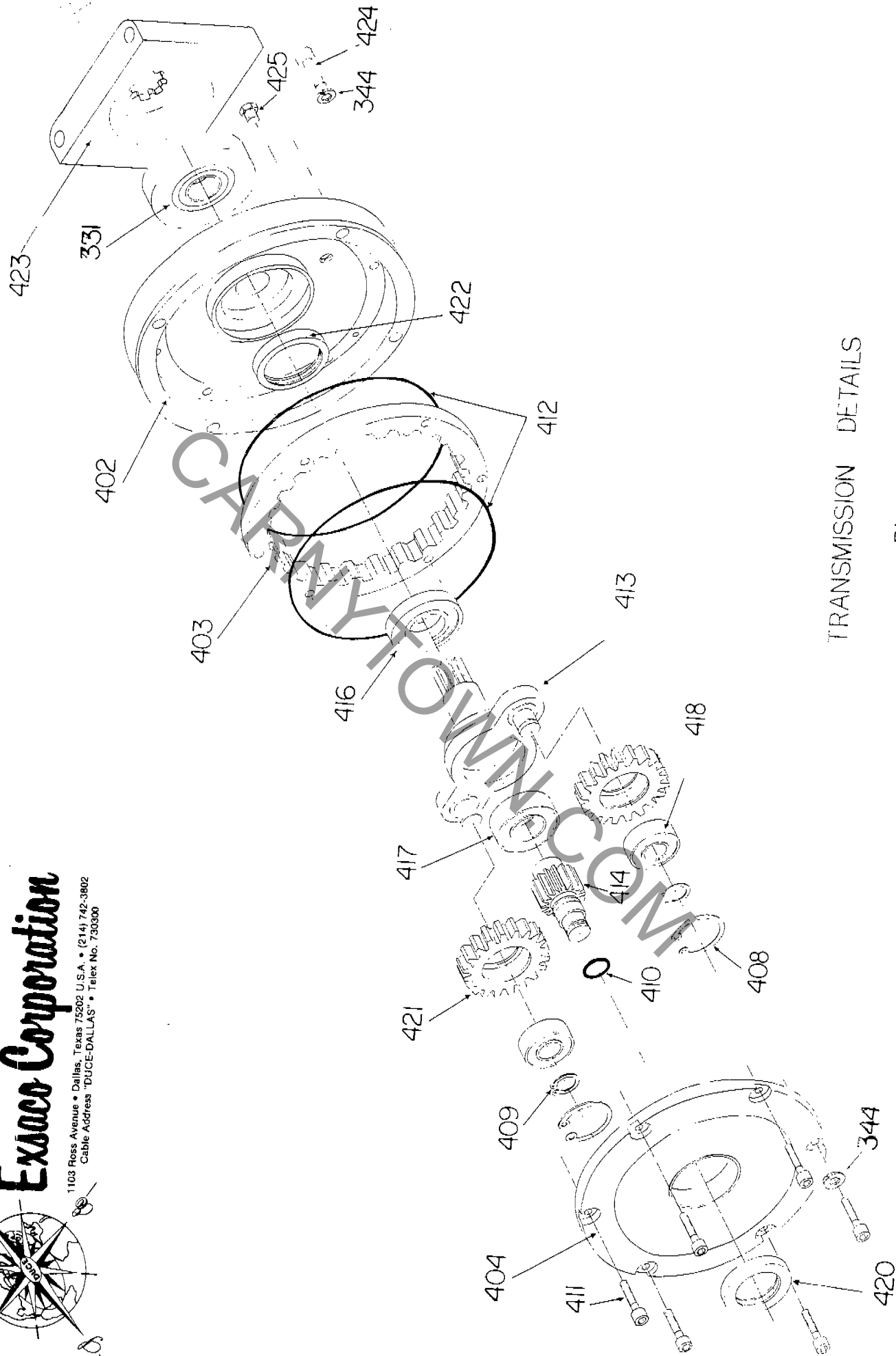
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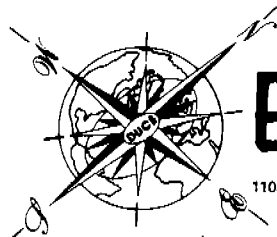
TRANSMISSION DETAILS

PLATE 4

PLATE 4 - TRANSMISSION DETAILS

PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
401	Transmission Assy., Complete (includes 335)	1
401B	Transmission Assy., Complete, rebuilt (when available)	1
402	Transmission Case	1
403	Ring Gear	1
404	Transmission Cover	1
408	Snap Ring, Expansion, Large (use with 421)	1
409	Snap Ring, Compression, Small (use with 413)	2
410	"O" Ring Seal, Small (use with 414)	2
411	Allen Bolt (use with 402/404)	1
412	"O" Ring Seal, Large (use with 403/404/402)	6
413	Mounting Gear (use with 421)	2
414	Spur Gear	1
331	Bearing, Sealed (use with 423)	1
416	Bearing, Open (use with 413)	1
417	Bearing, Sealed (use with 413/414)	1
418	Bearing, Sealed (use with 421)	1
420	Grease Seal, Small (use with 404)	2
421	Intermediate Gear	1
422	Grease Seal, Large (use with 402)	2
423	Transmission End Block	1
424	Allen Bolt	1
425	Plug, Hex, Inspection (use with 402)	4
344	Lock Washer (use with 424/411)	2
475	Seal Kit (Incl. 1-410/2-412/1-420/1-422)	10
		1

NOTE: Trade in allowance is given on used transmission assembly, if complete.



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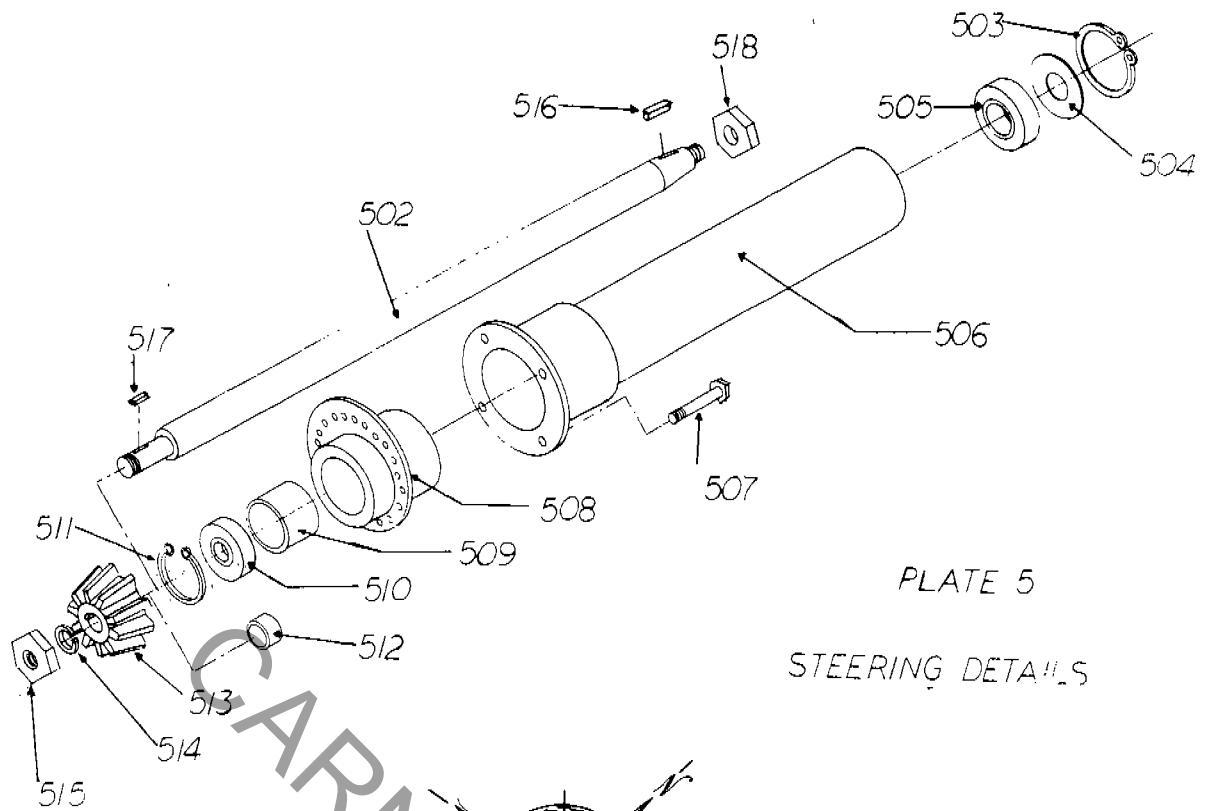
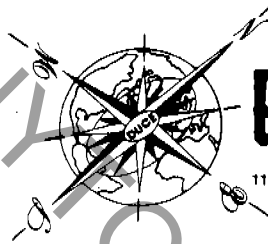


PLATE 5

STEERING DETAILS



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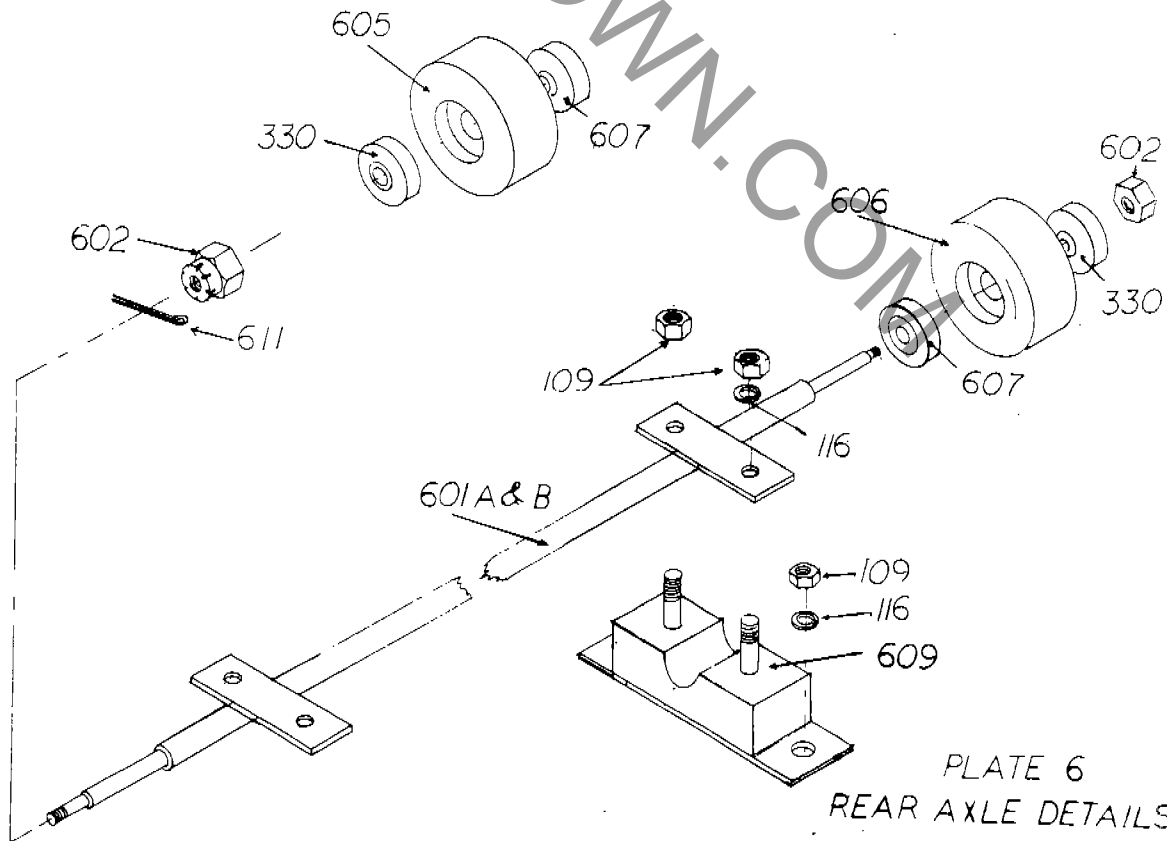


PLATE 6

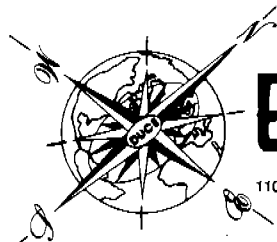
REAR AXLE DETAILS

PLATE 5 - STEERING DETAILS

PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
501	Steering Assy. Column, Complete and ready to attach to 101 (less steering wheel)	1
502	Steering Shaft	1
503	Snap Ring, Expansion	1
504	Dust Shield	1
505	Bearing	1
506	Steering Column Case	1
507	Hex Bolt (use with 506/101)	4
116	Lock Washer	4
508	Gear Adjuster	1
509	Spacer Sleeve, Large	1
510	Bearing, Sealed	1
511	Snap Ring, Expansion	1
512	Spacer Sleeve, Small	1
513	Bevel Gear	1
514	Lock Washer	1
515	Hex Nut	1
516	Key, Upper	1
517	Key, Lower	1
518	Hex Nut, Steering Wheel	1
550	Steering Wheel (See Page No. 13)	1
551	Steering Wheel, special 3-spoke	1

PLATE 6 - AXLE DETAILS

PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
601A	Rear Axle (for Cosmo, Comet and Gemini - 31" long)	1
601B	Rear Axle (for Mach 1--wide body - 33" long)	1
602	Castle Nut	1
330	Bearing, Sealed	1
605	Iron Rear Wheel	1
606	Rubber Rear Wheel	1
607	Bearing, Sealed	1
609	Pillow Block	1
109	Hex Nut (use w/609 to fasten to frame)	4
611	Cotter Pin	2
116	Lock Washer (use with 609/109)	4



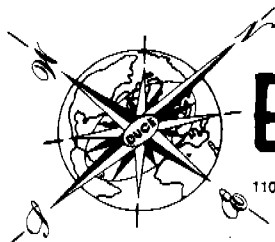
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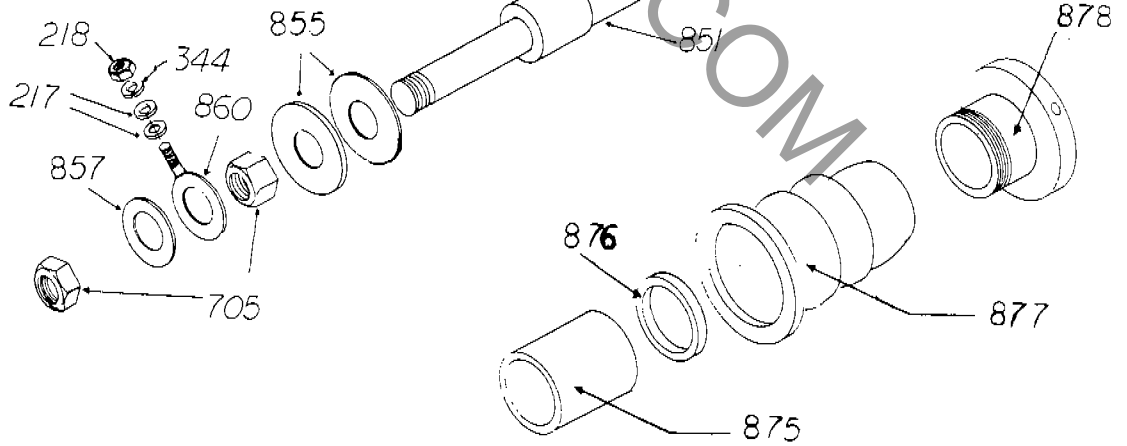
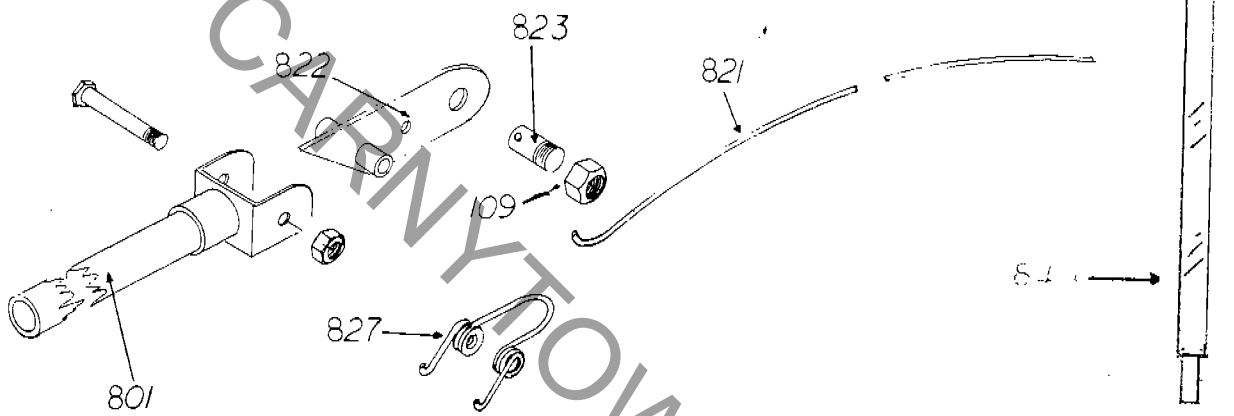
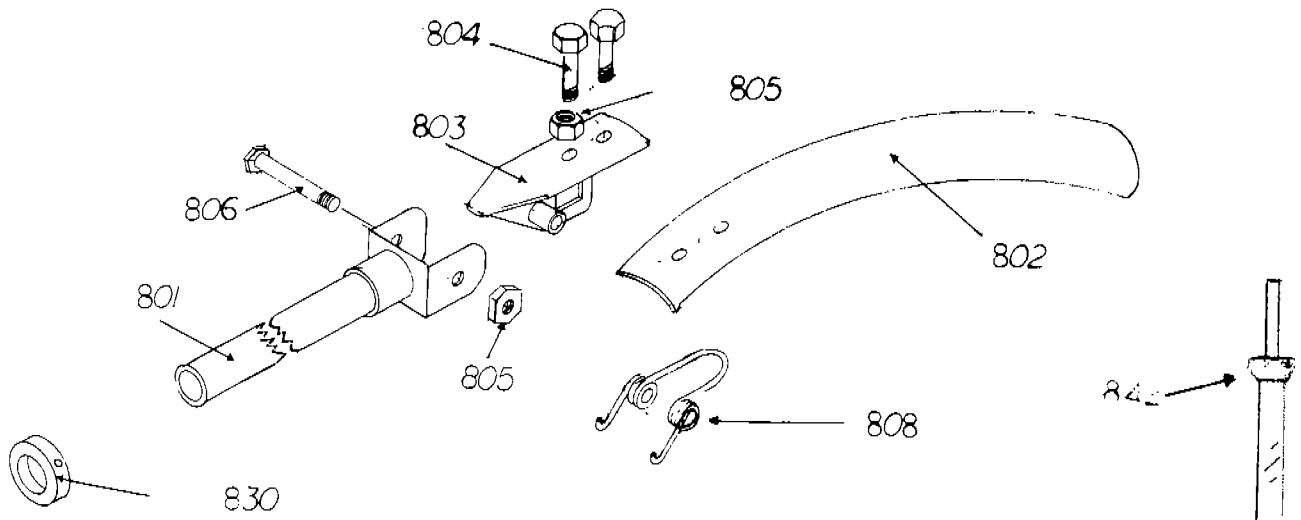
PLATE 7 - SWITCH PEDAL DETAILS

PART. NO.	DESCRIPTION	NO. REQ. PER ASSY.
701	Switch Pedal, Complete	1
703	Foot Pad	1
705	Jamb Nut	1
706	Hinge, Pedal	1
218	Hex Nut	6
707	Bracket, Large	1
708	Bracket, Small	1
709	Hinge, Switch	1
711	Machine Screw	2
344	Lock Washer	4
109	Hex Nut (locks pedal to car floor)	1
116	Lock Washer (use with 109)	1
715	Rubber Bumper	1
716	Extension Spring	1
717	Flat Insulator, with 2 holes	1
718	Round Headed Bolt	1
719	Fiber Washer, with shoulder	2
720	Fiber Insulator	2
721	Large Copper Block	1
217	Flat Washer	6
723	Hex Bolt	1
724	Small Copper Block	1
725	Fiber Washer	1
726	Insulator, with cut corner	1
750	Pedal Rebuilding Kit (includes: 5-217/1-716/1-721/ 6-218/1-717/1-723/4-344/1-718/1-724/2-711/2-719/ 1-725/1-715/1-720/1-726)	1



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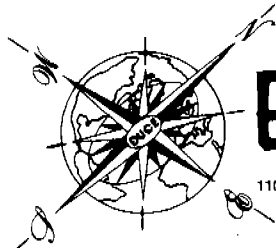
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PLATE 8  
 TROLLEY DETAILS

PLATE 8 - TROLLEY DETAILS

20

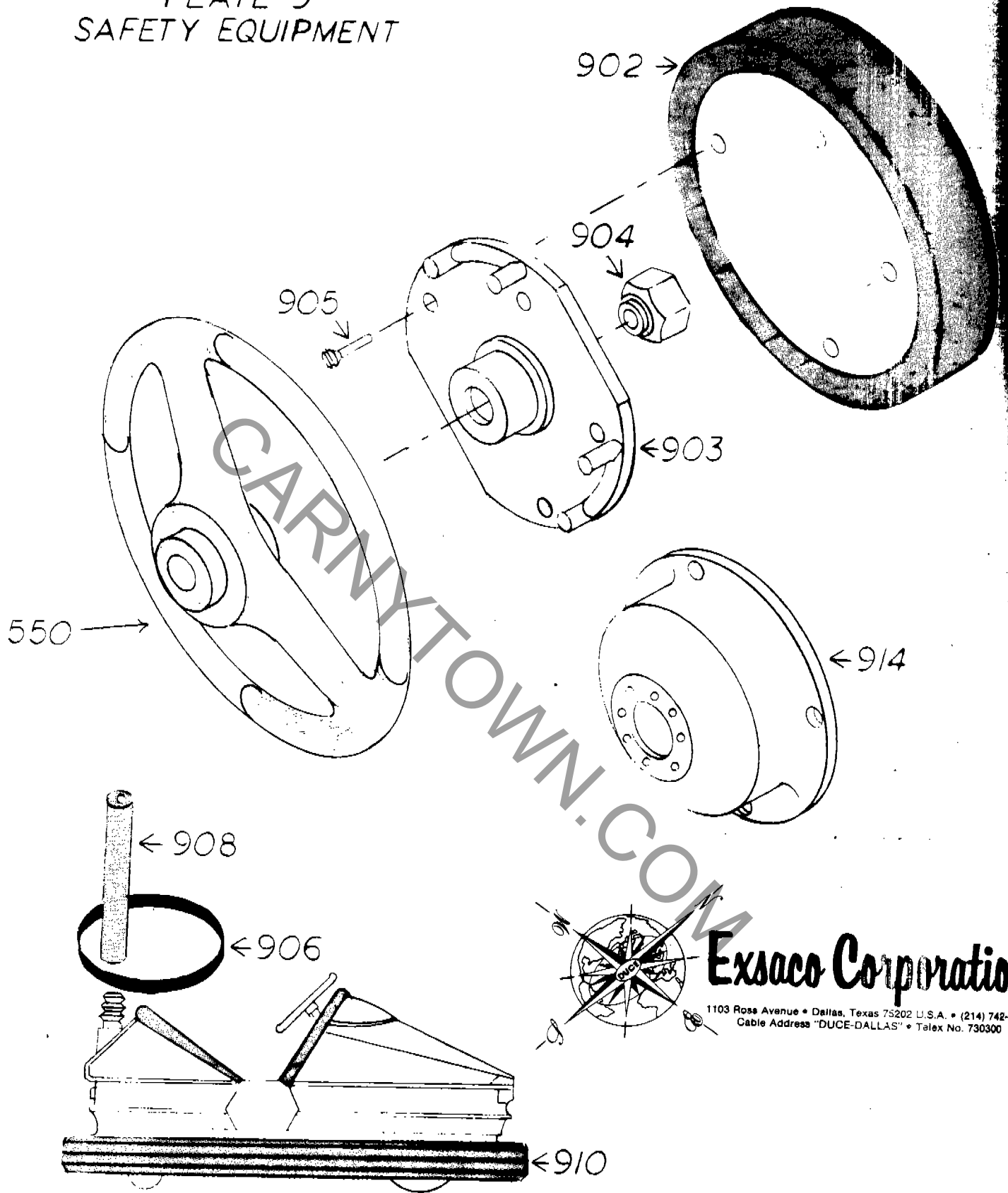
PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
800	Wide Wiper Blade Assembly, Complete (includes 801/802/ 803/804/805/806/808/830)	1
801	Trolley Rod End (use on all applications)	1
802	Wide Wiper Blade	1
803	Connecting Bracket (for attaching wide wiper blade)	1
804	Hex Bolt	2
805	Hex Nut (use with 804/806)	3
806	Hex Bolt (use with 801)	1
808	Trolley Spring (use with 803/802)	1
820	Wire Wiper Assembly, Complete (includes 801/806/821/823/ 830/822/827/109)	1
821	Wire Wiper	1
822	Connecting Bracket (for wire wiper)	1
823	Headless Bolt	1
109	Hex Nut (use with 823)	1
827	Trolley Spring (for wire wiper only)	1
829	Insulator Block (use with 851) [not shown]	1
830	Set Collar (use with 801)	1
840	Trolley Pole, Complete	1
842	Chrome Cap (for trolley pole)	1
850	Trolley Rod Joint, Complete Assembly (includes 851/855/ 705/857/860)	1
851	Trolley Rod Joint	1
855	Flat Washer	2
857	Flat Washer	1
705	Hex Nut (use with 851)	2
860	Washer, with Electric Stud Terminal	1
217	Flat Washer	2
218	Hex Nut	1
344	Lock Washer	1
875	Compression Sleeve, Rubber	1
876	Compression Ring	1
877	Rubber Flange	1
878	Rail Fitting (all cars)	1
806	Hex Bolt (holds 829 to car)	1



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PLATE 9  
SAFETY EQUIPMENT

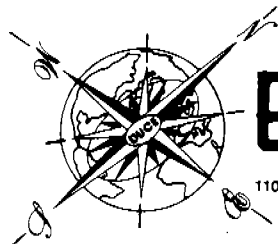


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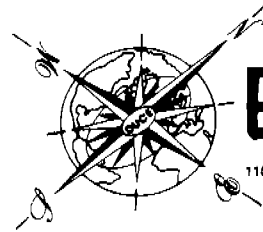
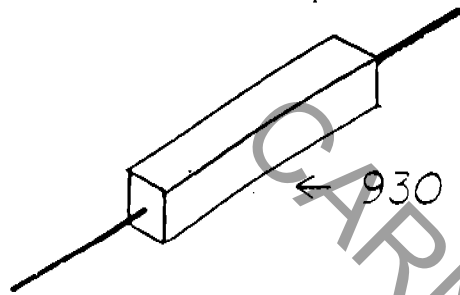
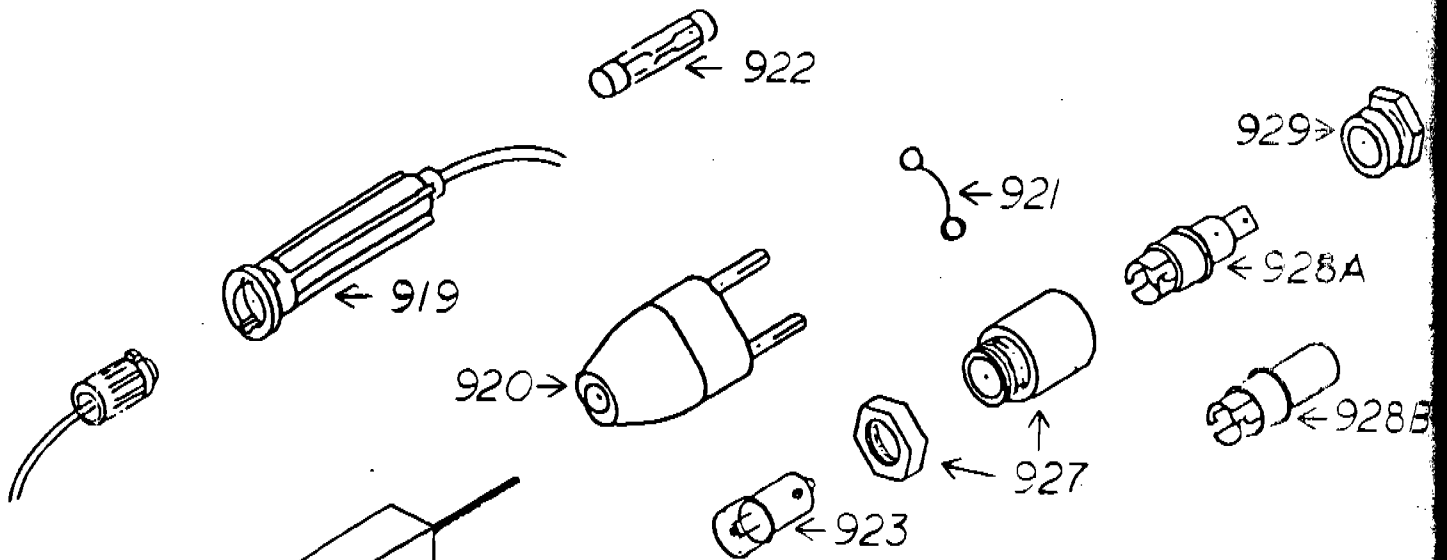
PLATE 9 - SAFETY EQUIPMENT

PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
900	Safety Kit, complete (incl. 902, 903, 904, 4-905, 906, 908 [a 1018 wrench is needed per order])	1
901	Steering Wheel Cushion Kit (incl. 902, 903, 904, 4-905, [a 1018 wrench is needed per order])	1
902	Steering Wheel Pad (only)	1
903	Mounting Bracket (for steering wheel pad 902)	1
904	Nut, special (for steering wheel mounting bracket 903)	1
905	Machine Screws (for mounting 902 to 903)	4
906	Seat Belt - Mach 1, Cosmo, Comet	2
908	Pole Cushion	1
910	Bumper Tire - Mach 1, Cosmo, Comet	1
911	Bumper Tire - Dune Buggy	1
912	Bumper Tube (all types)	1
914	Mounting Bracket (fiber glass) for cushions on old-type, 3-spoke steering wheel	1
550	Steering Wheel	1



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PLATE DA

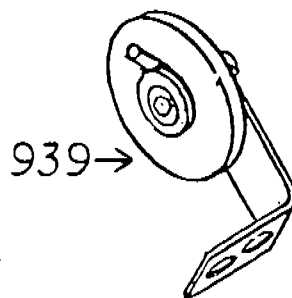
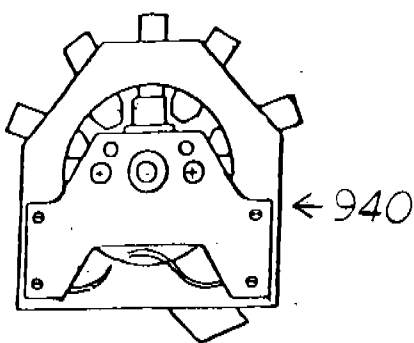
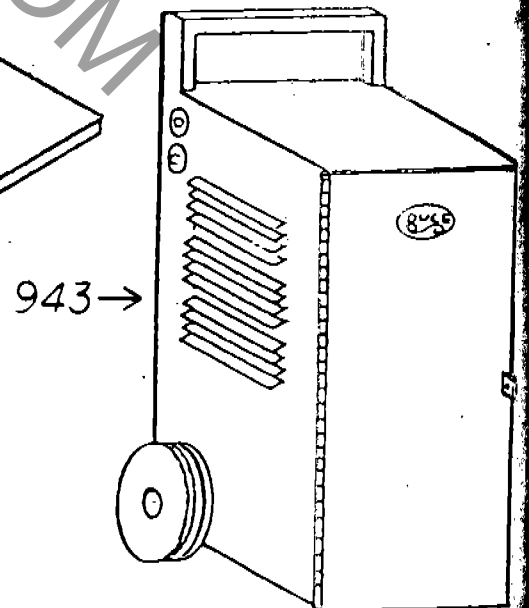
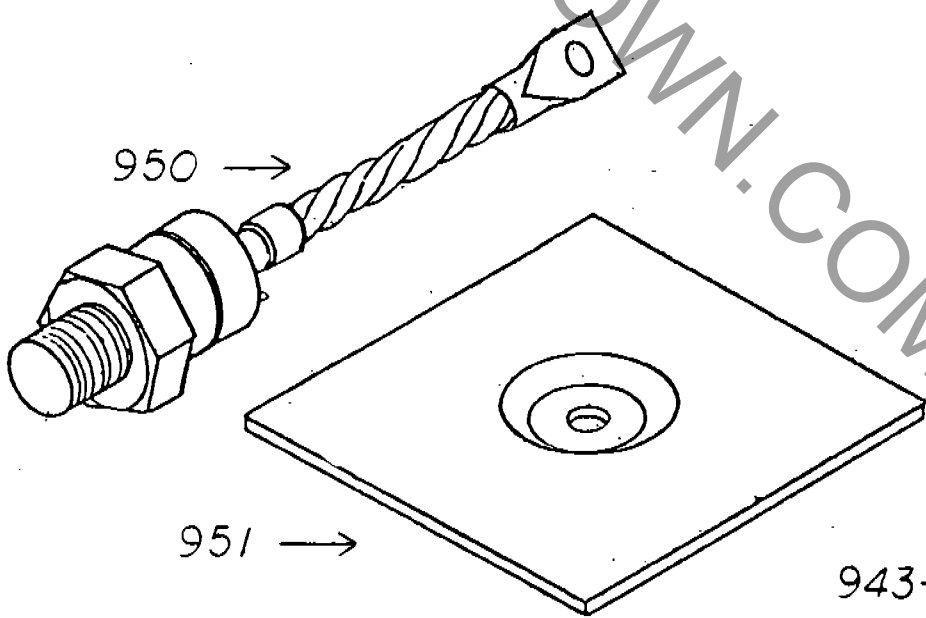
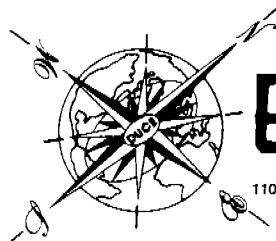


PLATE 9A - ACCESSORIES

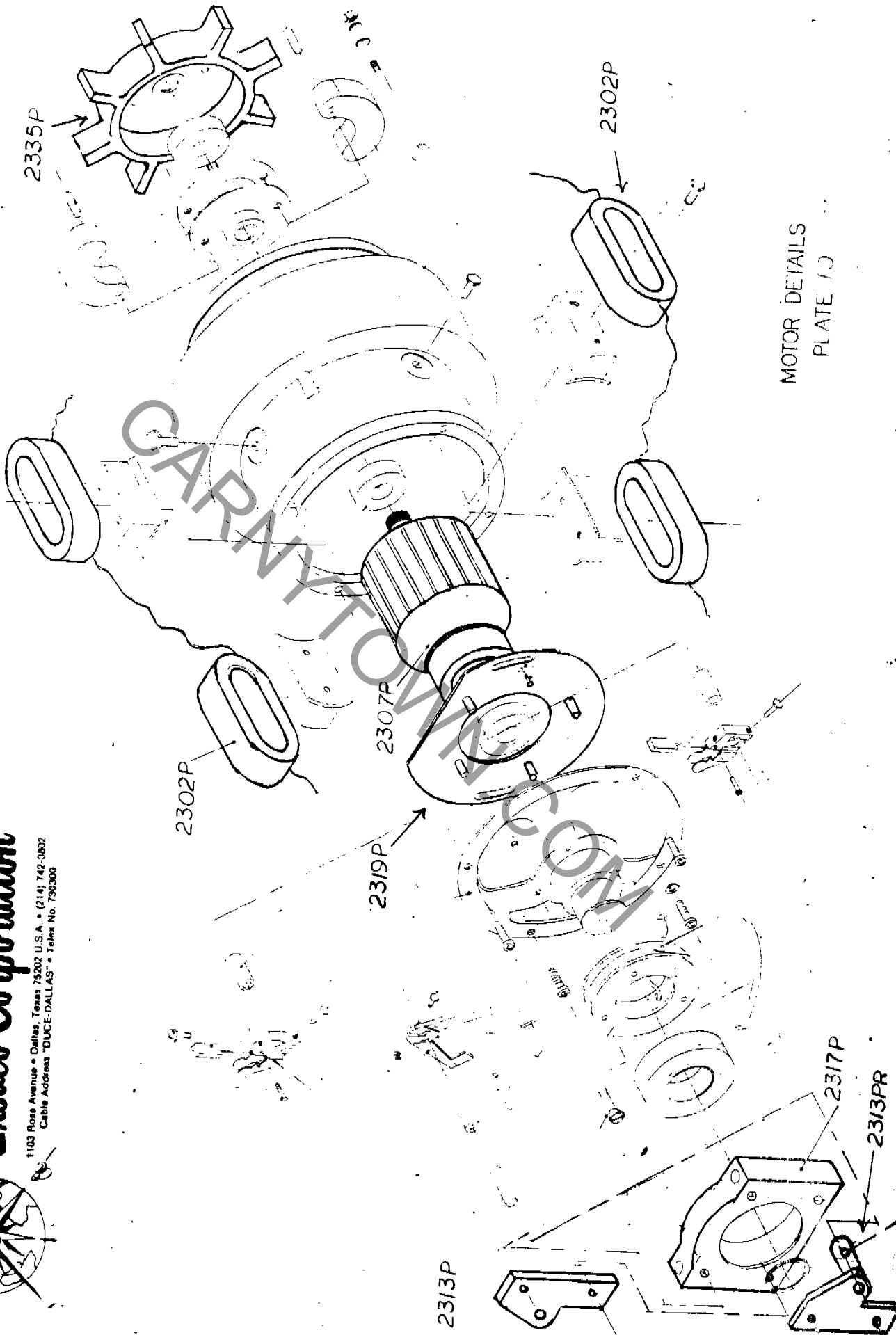
PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
915	Talc for lubricating bumper tires (25 lb. drum)	
919	Fuse Holder, inline (motor)	1
920	Fuse, Complete (for lights)	1
921	Fuse Wire (for 920)	1
922	Fuse, 20 amp (for 919)	1
*923	Light Bulb (12 volt, 3 watt)	8
*923	Light Bulb (24 volt)	4
924	Wire, flexible (per foot)	
927	Light Socket, base only	4
928A	Bulb Holder, tab type	4
928B	Bulb Holder, pin socket type	4
929	Locking Nut (for light socket)	1
930	Resistor (for lights on Cosmo and Mach 1)	1
931	Terminal Connector for 1/4" stud (crimp type)	
932	Terminal Connector for 3/16" stud (crimp type)	
933	Terminal Connector (crimp type), Spade (female)	
934	Butt Connector	
935	Steering Wheel Button	1
936	Terminal Connector (crimp type), Pin (male) [use w/928B]	
937	Transformer - 20 KVA for converter only (single-phase, 208-230 volt AC, 70-110 volt DC)	1
938	Transformer - 30 KVA for converter only (single-phase, 208-230 volt AC, 70-110 volt DC)	1
939	Resistor, Thyrite (for converter)	1
940	Selector Switch (for all types converter)	1
941	Oval Emblem - "Duce Mark of Excellence"	1
942	Emblem - "Duce, Made in Italy"	1
943	Converter - 20 KVA, Complete (220 volt AC, single-phase 70-110 volt DC)	1
943B	Rebuilt Converter - 20 KVA, Complete (with trade-in only and when available)	1
944	Converter With Remote Control - 20 KVA (220 volt AC, single-phase, 70-110 volt DC)	1
950	Diode for Duce Converter (all sizes) [incl. nut/washer]	1
951	Heat Sink Plate for Converter (all sizes)	1

\*If other type of bulb is required, please specify when ordering.



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MOTOR DETAILS  
PLATE 1/J

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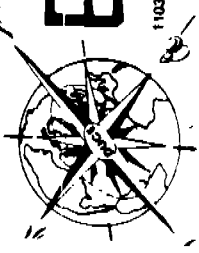
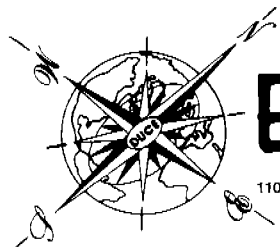


PLATE 10 - MOTOR PARTS  
(Floor-Pick Up Cars Only)

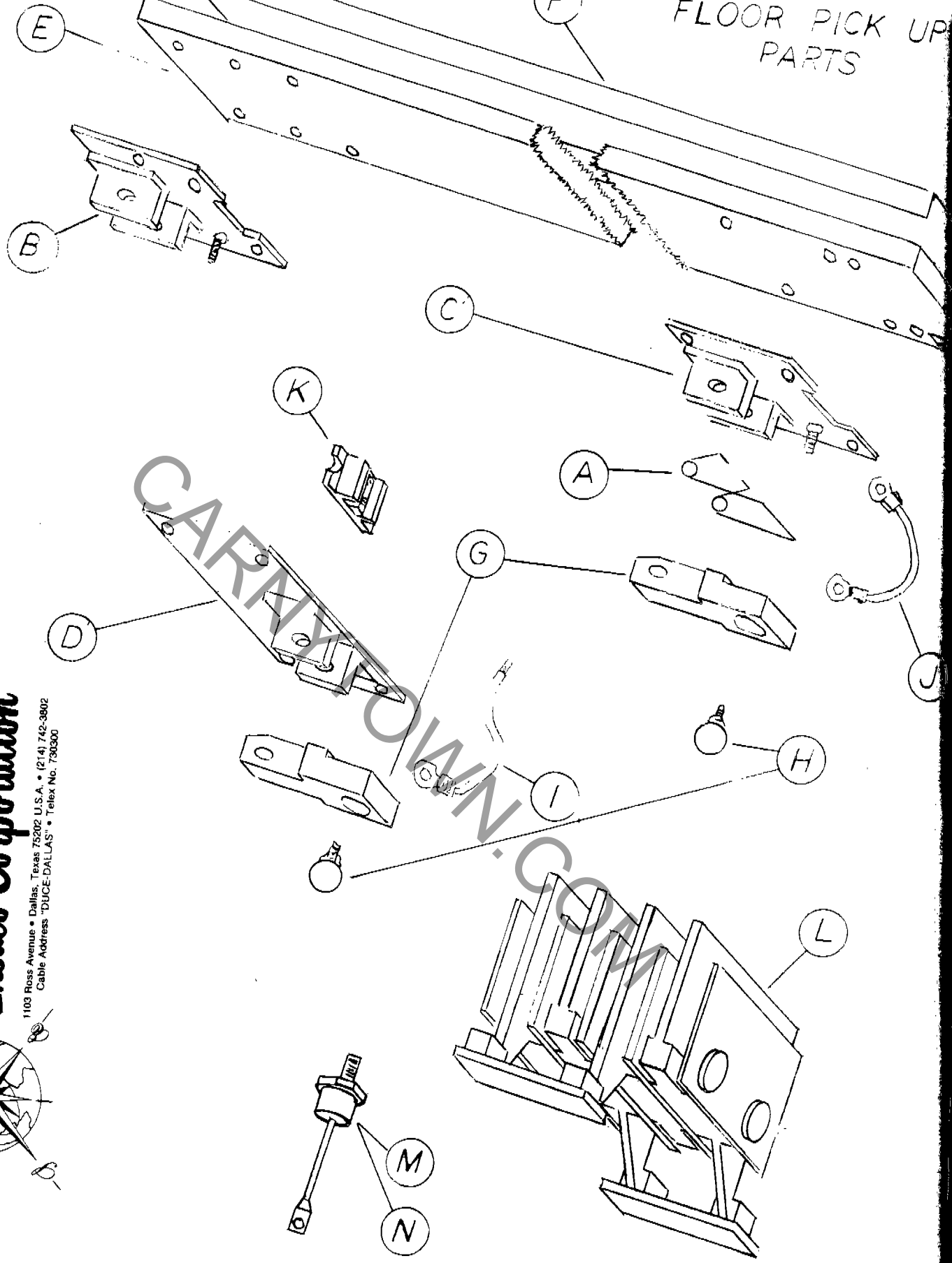
PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
2301P	Drive Unit, Complete	1
2302P	Coil Assembly	1
2307P	Armature	1
2313P	Bracket for Commutator Brush (Left)	1
2313PR	Bracket for Commutator Brush (Right)	1
2317P	Mounting Block (Brush Mounting)	1
2318P	Bolts for 2313P (Flat Head)	2
2318PB	Bolts for 2313P (Hex Head)	2
2319P	Brush Plate (4 Pins)	1
2335P	Flywheel (Finned) Clutch	1
<u>Additional Parts Not Pictured</u>		
2601P	Axle for Right and Left Side	2
2605P	Iron Back Wheel (1 7/8" Wide)	2



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FLOOR PICK UP PARTS



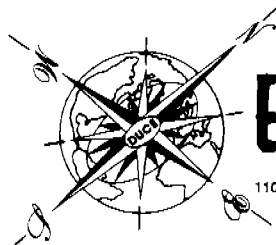
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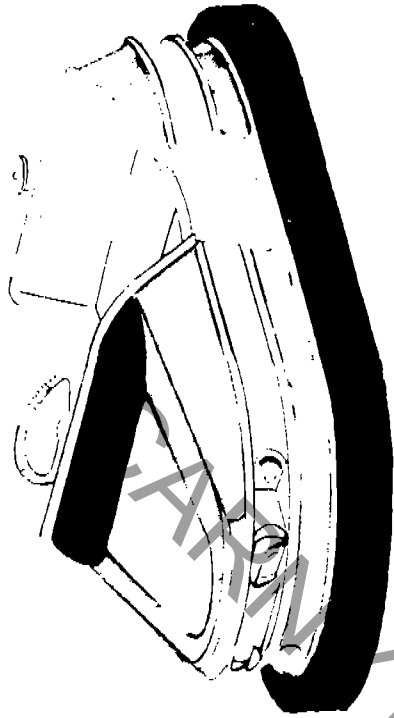
ADDITIONAL PARTS FOR FLOOR-PICK UP CARS

INDEX	PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
A	2775P	Spring for Floor Contact Brush	4
	2776P	Floor Contact Brush, <u>Cast Iron</u>	2
B	2777PA	Bracket for Floor Contact Brush (Front)	1
C	2777PB	Bracket for Floor Contact Brush (Center Rear)	1
D	2777PC	Bracket for Floor Contact Brush (Rear Rt. & Lft.)	2
E	2778P	Insulator Board	1
F	2779P	Insulator Material	1
	2784P	Polyurethane Floor Contact Brush, Complete	4
G	2785P	Polyurethane Floor Contact, Holder Only	4
H	2786P	Steel Contact Ball	4
I	2788P	Jumper Wire, 1 Terminal	2
J	2789P	Jumper Wire, 2 Terminal	2
K	2790P	Terminal, Single Pole (for Rear L & R Contacts)	2
	2791P	Wire, #10 Blue or Red (Per Foot)	
	2792P	Fuse Holder	1
	2793P	Fuse for 2792P	1
	2943P	Transformer, 24 KVA, 3-Phase, 220 V, 60 Cycle (Transformer Only - No Enclosure)	1
	2944P	Tap Changer (Speed Control)	1
L	2951P	Heat Sink for Rectifiers (sold Complete only)	1
M	2952P	Diode - Standard	4
N	2953P	Diode - Reverse "R"	4



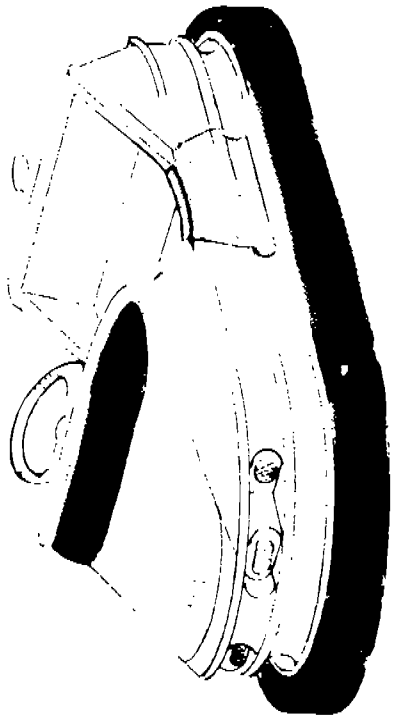
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COSMC

PLATE II  
CAR BODIES



CCMET



ATACH I



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PLATE 11 - CAR BODY ACCESSORIES BY MODEL

	PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
OSMO	954	Head Light Assembly	2
	954A	Nut (for attaching light assy. to car body)	4
	955	Headlight Lens	2
	955A	Screw (for attaching light lens to light frame)	4
	956	Tail Light Assembly (use two 954A nuts)	2
	957	Tail Light Lens (use two 955A screws)	2
	960	Windshield, Non-transparent Fiberglas	1
	961	Windshield, Plexiglass	1
	965	Dash Pad	1
	966	Seat Back	1
	967	Seat Bottom	1
	969	Nut (for body tie down)	2
	971	Marker Light, Front (clear/round)	2
	972	Marker Light, Back (red/round)	2
	976	Numbers, Stick-on Type (for rear of car)	1
	942	Emblem - "Duce, Made in Italy"	1
	OMET	961	Reflector, Oblong (specify red or amber)
962		Reflector, Round (specify red or amber)	4
963		Screw (for reflector)	16
965		Dash Pad	1
966		Seat Back	1
967		Seat Bottom	1
968		Body, Complete with Seat and Dash Pad	1
969		Nut (for body tie down and seats)	6
977		Kick Plate, Right	1
978		Kick Plate, Left	1
979		Vinyl Insert for Trim (per foot)	
980		Aluminum Trim (per foot)	
981		Rivets for Aluminum Trim	
941	Emblem - "Duce Mark of Excellence"	1	
IACH I	956	Tail Light Assembly (use two 954A nuts)	2
	957	Tail Light Lens (use two 955A screws)	2
	958	Head Light Assembly	2
	959	Head Light Lens	2
	959A	Screw (for attaching 958/959 to car body)	2
	964	Dash Pad	1
	966	Seat Back	1
	967	Seat Bottom	1
	969	Nut (for body tie down)	2
	975	Numbers, Chrome	1
	976	Numbers, Stick-on Type (for rear of car)	1
	942	Emblem - "Duce, Made in Italy"	1

ALL  
CARS

All chrome trim, lights and other body parts must be ordered by description. (Due to changes in body styles, when ordering trim please describe car and trim piece in detail.)

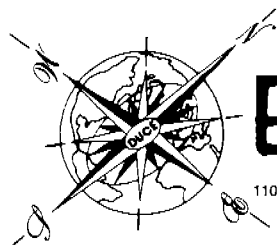


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CONTINUATION OF PLATE 11 - CAR BODY ACCESSORIES BY MODEL

	PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
GEMINI Not Shown on Page 21	1900	Body w/o Headrest (incl. lights, decals, seat, dash)	1
	1901	Body w/Headrest (incl. lights, decals, seat, dash)	1
	1902	Body w/o Headrest - Metal Flake (incl. same as 1900)	1
	1903	Body w/Headrest - Metal Flake (incl. same as 1901)	1
	1909	Chrome Trim for Headrest (specify length)	
	1910	Headrest Pad	2
	1911	Black Trim (for rail fitting hole)	
	1912	Screw (6 req./headrest, 4 req./dash pad, 18 req./rear lens)	
	1913	Washer, Finish [use w/ 1912] (6 req./headrest, 18 req./rear lens)	
	1920	Decals, Complete Set (specify color)	1
	1921	Wide Tri-Stripe (specify color and length)	
	1922	Narrow Tri-Stripe (specify color and length)	
	1923	Front Tip (specify color)	1
	1924	Symbol (specify color)	1
	1930	Upholstery, Complete Seat and Dash (incl. all hardware)	1
	1931	Seat Back	1
	1932	Seat Bottom	1
	1933	Dash Pad	1
	1934	Black Finish Washers	4
	1940	Kickplate, Left	1
	1941	Kickplate, Right	1
	1942	Rivets, Large Head (for kickplate)	4
	1943	Back-up Washers, Large (for kickplate)	8
	1944	Rivets, Small Head (4 req./kickplate, 16 req./light socket)	
	1950	Lens, Right Front (clear)	1
	1951	Lens, Left Front (clear)	1
	1952	Trim, Right Front (black)	1
	1953	Trim, Left Front (black)	1
1954	Screw, Black (for front lens)	6	
1955	Lens, Right Rear (red)	1	
1956	Lens, Left Rear (red)	1	
1958	Cushion, Tail Light (per rear lens)		
1959	Light Socket	4	
1960	Bracket (for light socket)	4	
1961	Screw, Sheet Metal (for rail fitting hole)	2	
1962	Light Bulb	4	
1970	Emblem	1	
1976	Numbers, Black (3" x 1½")	1	
981	Rivets (for emblem and black trim)	6	



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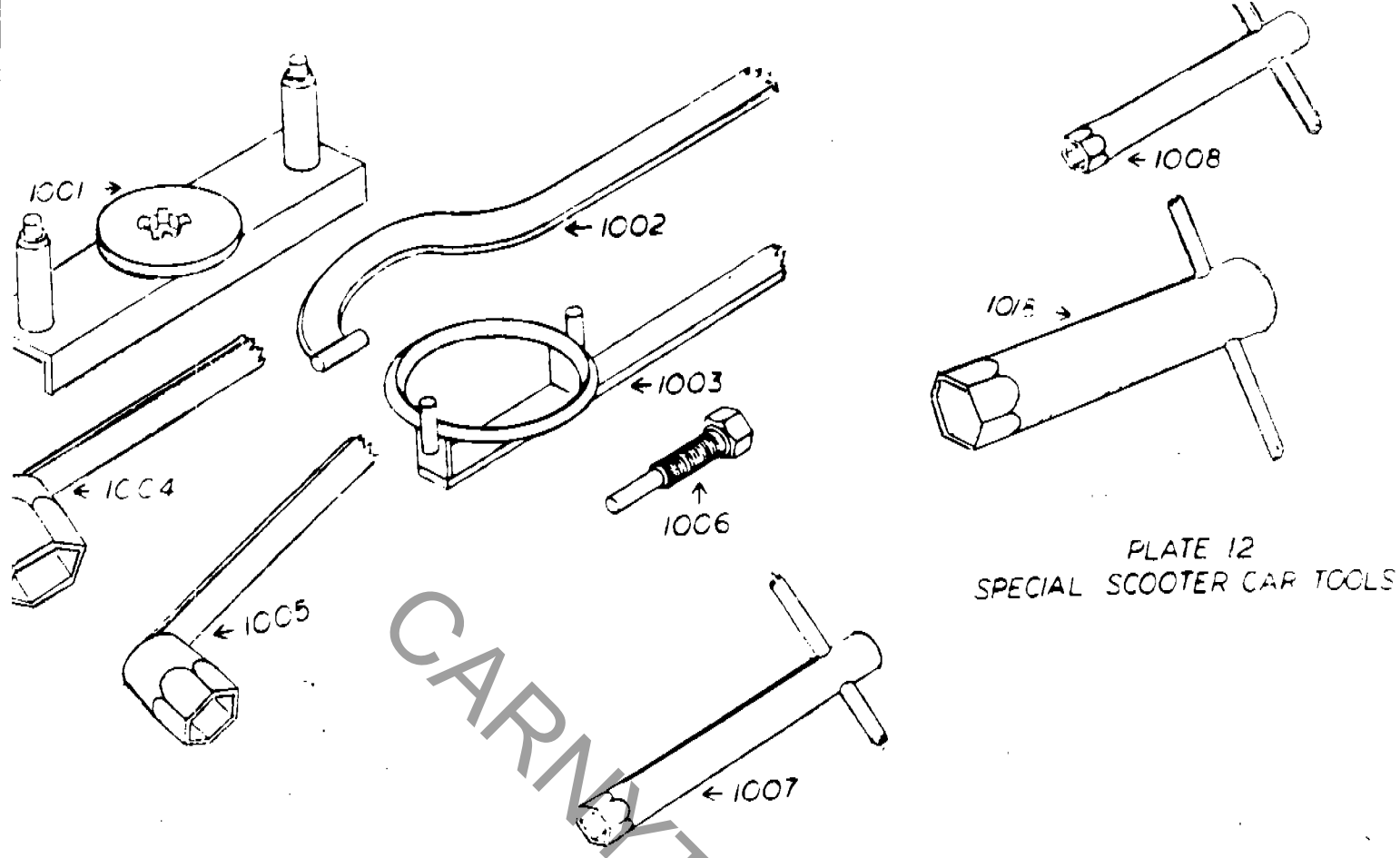
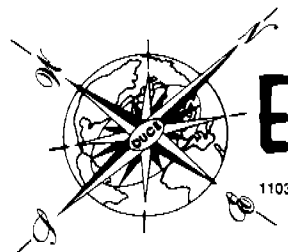


PLATE 12  
SPECIAL SCOOTER CAR TOOLS

PLATE 12 - SPECIAL SCOOTER CAR TOOLS

PART NO.	DESCRIPTION	NO. REQ. PER ASSY.
1001	Transmission Mount (holds transmission for removal of #335 clutch flywheel)	1
1002	Spanner Wrench (tightens #878 rail fitting)	1
1003	Spanner Wrench (for removal of #335 clutch flywheel)	1
1004	Socket Wrench (for #210 nut to separate 101 from 102)	1
1005	Socket Wrench (for removing #211 locking nut)	1
1006	Bolt, reduced shank (for removal of #308 motor end plate)	1
1007	Tee Wrench (for use with 304/425/507/805/806)	1
1018	Socket Wrench (for use with #904 nut)	1
1025	Tool Kit, Complete (includes all above tools)	1

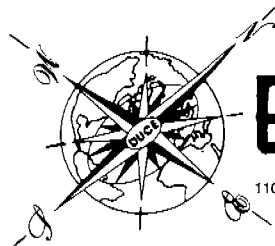


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RECOMMENDED LIST OF SPARE PARTS FOR 12 SCOOTER CARS

<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
		<u>For Ceiling Pickup Cars</u>
5	750	Pedal Rebuilding Kit
2	800	Wide Wiper Blade Assy., Complete
6	802	Wide Wiper Blade
2	803	Connecting Bracket
2	806	Pivot Bolt
2	805	Hex Nut
14	808	Trolley Spring
1	830	Set Collar
2	950	Diode for Duce Converter
1	1002	Spanner Wrench
1	1018	Socket Wrench
3	375	Brush Kit
4	109	Hex Nut
2	330	Bearing
5	922	Fuse
		<u>For Floor Pickup Cars</u>
5	750	Pedal Rebuilding Kit
1	1018	Socket Wrench
3	375	Brush Kit
4	109	Hex Nut
2	330	Bearing
10	2775P	Spring for Floor Contact
4	2784P	Polyurethane Pickup, Complete
10	2786P	Steel Contact Ball
5	2788P	Jumper Wire, 1 Terminal
5	2789P	Jumper Wire, 2 Terminal
5	2793P	Fuse
4	2952P	Diode - Standard
4	2953P	Diode - Reverse



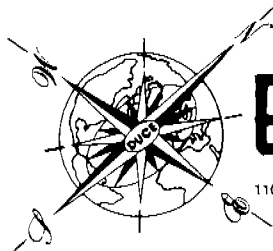
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S.D.C. BUMPER CARS

OPERATION, MAINTENANCE AND TROUBLE SHOOTING HINTS

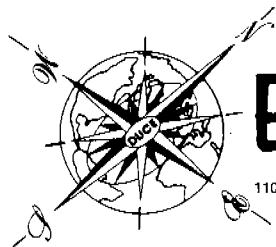
1. After initial few days of operation, tighten all electrical connections. An application of heavy-duty "loc-tite" is recommended at this point.
2. Lubrication -
  - A. All bearings inside the drive unit are sealed and require no additional lubrication.
  - B. Wheel bearings should be inspected and packed between 20,000 and 30,000 rides per car. Any good grade wheel bearing grease will do.
  - C. Once every week apply a small amount of grease to the ends of the hinge (706) and the switch hinge (709).
  - D. The bearings (104) between the inner housing (102) and outer housing (101) should be lubricated once a year or sooner if there is evidence of hard steering.
  - E. The transmission is filled and sealed at the factory. Unless there is evidence of loss of grease through the transmission seals, only yearly lubrication is required. At this time, open the inspection bolt and with a grease gun shoot one or two shots of multi-purpose grease into the opening. **CAUTION: OVERFILLING WILL DESTROY SEALS. THIS UNIT REQUIRES ONLY 1/2 CUP WHEN FILLED FROM EMPTY.**
3. Clutch - The clutch is a simple centrifugal unit that has only four moving parts, resulting in a long trouble-free life. Clutch linings have a life expectancy of 20,000 or more rides. A high pitch metal screeching sound, similar to worn auto brakes, is an indication that new clutch lining is needed at once.
4. Electrical - The motor is a 90V DC, series wound unit; it is speed controlled by varying the voltage. As a result of this design, voltage fluctuations are not harmful.
  - A. There are two sets of brushes in the motor.
    1. The double brush holders (312) have a long life as they contact the slow rotating, smooth slip ring (324).
    2. The single brush holders (203) and brushes (204) operate against the grooved commutator at a relatively high speed and wear at moderate rate. The brushes should be replaced when they no longer project above the brush holder. At this point, they may stick and arc against the armature.
    3. The field winding (302) can be replaced by removing bolts (304) and laminated block (303). Use caution in reassembling so as not to cut through insulation.



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- B. Pedal assembly - This unit is purposely simple in design. The switch is an "over center" unit that snaps on or off and cuts arcing to a minimum.
1. Copper blocks (721 and 724) serve as electrical contact points. The life of these blocks can be extended by occasionally smoothing the contact surfaces with a file. It is best to file these while out of the pedal assembly.
  2. Keep bolt (718) and nut (218) and bolt (723) and nut (218) tight. A loose connection at these points puts undue strain on the fiber washer (719) causing arcing and failure. In some situations, it is advisable to use two insulators (720) if arcing occurs at this point.
- C. Lights - All lights are wired in a series so that rugged 12 or 24 volt bulbs can be used; and if one burns out all fail. There is a fuse in front and under the seat on the older cars. The later cars may have an American-made "in-line" fuse. The European fuse can be obtained at any auto parts house.
5. Tire pressure should be checked regularly and kept at 16 lbs. per square inch. Low pressure allows car bodies and trim to come in contact when two cars meet. Slight nicks in the front trim are a sure sign of low tire pressure. Over inflation may cause severe bouncing between cars and possible injuries to patrons.
  6. Rear steel wheel must be kept clean to make a good electrical contact or the cars will slow down. Clean the wheel with a wire brush only.
  7. As the wheels (front and rear) wear, it is possible for them to reach a point where the bumper tire drags on the floor. Letting the wheels wear to this point is false economy as the bumper tires are expensive. A temporary fix while awaiting the arrival of new wheel is to place 4 or 5 washers between parts No. 102 and 317 and 423 on each stud (220). The effect is to raise the car 1/4 to 1/2" higher from the floor.
  8. Lubricate the bumper tires. We recommend the use of talc as a lubricant to be applied to the side of the tires and the inner rail surfaces of the building. Its use provides a glancing blow upon impact, giving freer and accelerated movement of the cars. Make a paste with water and apply freely. New compounds of silicone work extremely well also.
  9. Blow the motor cap out with compressed air each week. This is probably the single, most important maintenance point one can have. Dust builds up causing heat and gets into moving parts -- this can cause brushes to arc to the motor housing.
  10. Contact between the ceiling and the car trolley assembly - one of the most frequent trouble spots. The car not only moves in its steered direction, but during a severe bump with the rail or another car, the



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pole whips in any one of several directions. The result is a possibility of the blade being forced in a new direction without time to turn in the socket. Thus it is very important to have the trolley rod end (801) turn freely in the trolley pole (840). Keep this part lubricated with vasoline or a similar product.

On certain ceilings, it is possible for the blade (802) to be forced backwards into the joint between the ceiling plates or between the plate and support. Blades can break in this type of action and become flying missiles. Keep the ceiling plates tight so no spaces appear between them.

Set collars (830) may be used to adjust the contact between the ceiling and blade (802).

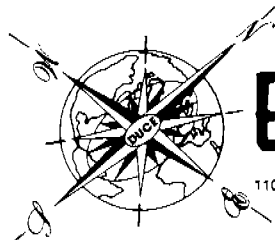
Keep the fitting rail (878) tight enough so that the trolley pole does not swivel.

11. The in-line fuse protection for the motor in the nose of the car is located near the outer housing. This requires a 15-16 amp fuse.
12. DAILY VISUAL INSPECTION AND COMMON SENSE ARE THE MOST IMPORTANT ITEMS IN PREVENTIVE MAINTENANCE!

#### FLOOR PICK UP CARS

The Floor-Pickup type bumper car has basically the same type chasis and drive unit so all previous mentioned maintenance information applies.

Extra care must be taken to keep under side of car clean and dust free to help protect the rectifier. In addition, floor contact brushes should be kept lubricated and free moving.



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