

# **mart cart™**



## **OWNER'S MANUAL**

**MODEL #02002, "Commercial Series"**

### **CONGRATULATIONS!**

You have just purchased the best electric shopping cart on the market today, incorporating the very latest in technological advances. To assure you of the best and safest performance as well as longest equipment life, please read the enclosed information.

After reading the material in this manual, should you have a service problem or need help please call our customer service department on our toll free number: **1-800-548-3373**.

**TO ORDER PARTS CALL: 1-501-636-5776 or 1-800-548-3373**

Be sure to give the serial number to the parts department personnel. This number is located on the rear body near the charging cord shown at upper middle of exploded view drawing, page 6 in this manual.

**TERMS:** All parts will be shipped with check in advance or C.O.D. Commercial accounts are allowed 30 day terms from date on invoice with approved credit.

**FREIGHT:** All freight will be paid by the customer. Special consideration will be given to items under warranty coverage.

**MART CART,™** 115 E. LINDEN, ROGERS, AR 72756

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**PLEASE READ BEFORE OPERATING**

**I. WARNINGS:**

- A. Never attempt to charge the battery in this cart without using an electrical outlet that is protected by a GFCI, (Ground Fault Circuit Interrupter).
- B. Replace charging cord or cord reel if either is damaged or if the cord is worn or frayed.
- C. Never use the charging cord without proper grounding. Do not use if plug does not have three terminals.
- D. Never allow the Mart Cart to be used out-of-doors or on any surface that is not level.
- E. Always disconnect power before servicing.

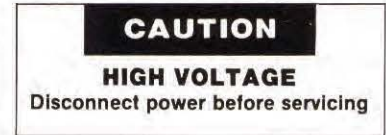
**WARNING LABELS (RED) ON CART**



“A,B,C” Above



“D” Above



“E” Above

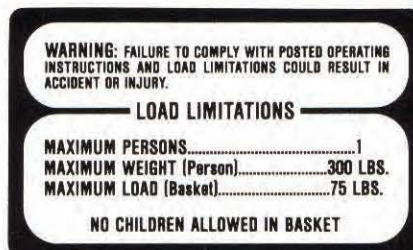
**II. RESTRICTION TO OPERATION:**

- A. This cart is for use indoors - on level surface only. (See decal “D” above.)
- B. Standing on cart is permitted providing the operator stands in the center only. DO NOT STAND WHILE CART IS MOVING. Be certain all switches are in the “OFF” position before standing. (See “Operating Instructions” on Cart.)
- C. After battery is charged, disconnect power supply cord before operating Cart. (See decal “C” below.)
- D. Do not exceed the load limitations as shown on the Cart. (See decal “D” below.)
- E. Do not force power supply cord into the rear housing of cart. Follow posted operating instructions. (See decal “E” below.)
- F. Never leave battery on charger over 10 hours. (See page 4 for recommended charging time.)
- G. Never fill pneumatic tires above pressure rating shown on the sidewall of the tires. Foam-filled tires do not require air, and will exhibit “0” pounds of pressure on tire gauge.
- H. DO NOT allow children to operate cart. Keep cart secured with key at service counter or offer “Key Club” program. (Key Club program - form #111789.)

**RESTRICTION LABELS ON CART (BLACK)**



“C” Above



“D” Above



“E” Above

**III. FREIGHT DAMAGE:**

- CHECK:**
1. The shipping carton for any visible damage. Report the damage to the freight carrier immediately. File a claim with the carrier if actual damage to your cart has occurred.
  2. Contents of the carton. The contents should agree with the information listed on the packing list. Report any shortage to the carrier and the factory immediately.

**IV. WARRANTY REGISTRATION:**

1. Complete & return the WARRANTY REGISTRATION CARD. Noting the serial number located near the charging cord.

BEFORE OPERATING, READ ALL INSTRUCTIONS THOROUGHLY.

**V. PREVENTATIVE MAINTENANCE:**

1. If required, check tire pressure every 6 months. Air tires to 30 PSI or as printed on the tire sidewalls. Most carts after November, 1990 are equipped with foam-filled tires, in which case only an occasional inspection of tread wear is necessary.
2. Check cord reel daily for proper operation. Cord should retract fully into rear housing with only the plug showing. Replace if faulty.
3. Check daily the condition of the power supply cord. Replace with new cord reel if worn or frayed.
4. Check daily the operation of the cart — all functions: key switch, forward-reverse switch, battery condition meter, seat switch, safe-t-stop, chair lock & swivel, throttle, foot brake, etc. Repair if faulty.
5. Check daily the anti-tip castors (dwg. #23, fig. 1) to be sure they are adjusted properly and are in good condition.
6. Clean cart daily. Use "Appliance Magic" fiberglass & plastic cleaner for high luster.

**NOTE:** For the best preventative maintenance plan, and best CUSTOMER SERVICE, assign one employee the daily task of cleaning and inspecting the cart(s). This way you will know who is responsible for the cart(s) and there should be no excuse for customer dissatisfaction.

**VI. BATTERY CHARGING:**

1. Install a Ground-Fault Circuit Interrupter (GFCI) in store's electrical outlet wherever Mart Cart is to be charged. This is to protect against any possible shock hazard. Installation of the GFCI must be done by a licensed electrician.
2. AC voltage of the power source required is 120 VAC current draw is 1.6 amps A.C. (output of charger is 14.5 volts D.C., 6 amps.)
3. Charge battery nightly after daily usage. When battery is fully-charged, the charger will maintain a "trickle" charge to keep battery at its peak or shut off automatically depending on charger type. We recommend charging time not to exceed 10 hours to achieve the maximum battery and charger life. To accomplish this, a 110 volt 10 hour timer is recommended.
- WARNING-** 4. Do not charge continuously, such as during the day & night, as it's not necessary and will reduce the battery life. Daily excessive charging more than the 10 hours recommended could result in severe damage to the battery and possibly the charger. Always keep battery covered while charging.
5. One complete charge (14 hours if battery is completely without charge) will allow up to 3 days of normal grocery store operation.
6. To determine if charger is working or battery is taking a charge; 1) Plug cord in to live wall socket, 2) Turn key switch to "ON" position, 3) Place direction switch (FWD/REV switch) in "OFF" position, 4) Rotate throttle grip to full "on" position. Needle should move from left to far-right side of battery condition meter. If the needle doesn't move, see "Trouble Shooting" Chart on page 5.
7. Maintenance of battery: none required as battery is a gel-cel design and requires no water.

Under normal circumstances, the Mart Cart battery should last 1½ to 3 years, or longer, if the above recommendations are followed. Replace with an original gel-cel battery. Mart Cart™ is not responsible for any adverse effects caused by a replacement lead-acid battery.

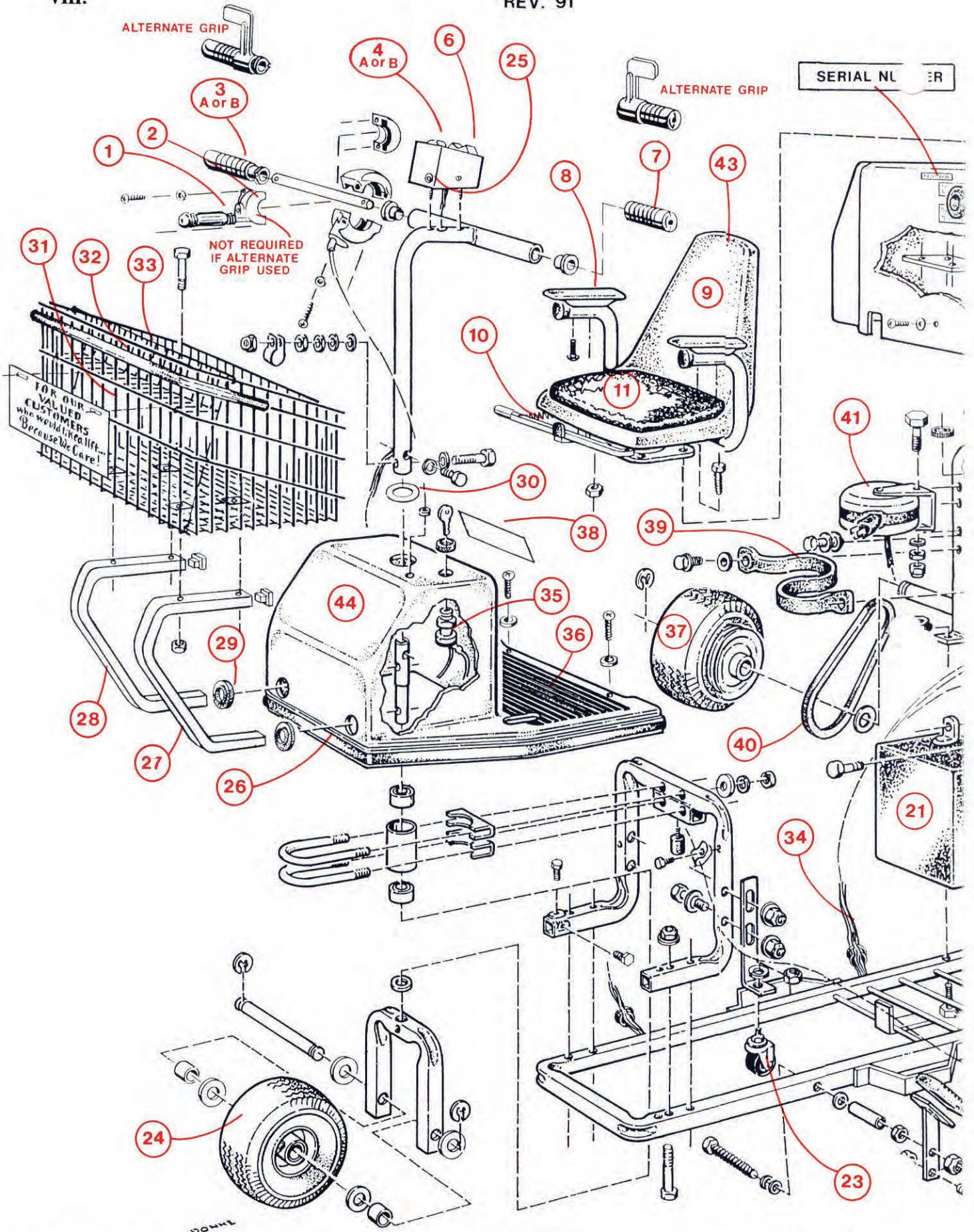
**TO TEST BATTERY CONDITION:****Read The Meter Under Load**

To test the battery, turn on the key switch, place rocker switch in forward, twist throttle grip fully-on. To get a true indication of battery level the cart must be running putting the battery under a load.

**VII.****TROUBLE SHOOTING:****CAUTION: WALL SOCKET SHOULD HAVE GROUND FAULT INTERRUPTER INSTALLED BY QUALIFIED ELECTRICIAN**

**TOOLS REQUIRED:** screwdrivers-blade & phillips; socket set- $\frac{7}{16}$ ,  $\frac{1}{2}$ ,  $\frac{9}{16}$ ; box or open-end wrenches- $\frac{7}{16}$ ,  $\frac{1}{2}$ ,  $\frac{9}{16}$ ; allen wrenches- $\frac{3}{32}$ ,  $\frac{1}{8}$ ,  $\frac{5}{32}$ ,  $\frac{3}{16}$ ; small crescent wrench; vice-grips; soldering gun, flux & solder; electric drill & bits; wire cutters, strippers & crimpers (good quality); voltage-Ohm meter with continuity checker; spray cleaner (Appliance Magic for countertops and plastics); clean rags; LPS #1 Lubricant, heavy duty grease.

<b>PROBLEM</b>	<b>PROBABLE CAUSE</b>	<b>SOLUTION</b>
1. Cart moves with switch in "FWD" or "REV" without actuating throttle	1. Broken or weak throttle spring or broken cable 2. Loose set screw on throttle plate 3. Improper adjustment of throttle cable	1. Replace 2. Tighten, adjust cable 3. Adjust per instructions
2. Cart stops when making right or left turns	1. Broken wire in harness where it exits steering column	1. Replace with harness kit
3. Cart won't go at all, throttle system O.K.	1. Broken wire in harness 2. Weak battery 3. Defective or old battery 4. Open circuit breaker 5. Safe-T-Stop faulty 6. Seat switch not depressed	1. Replace w / harness kit 2. Charge 3. Replace w / new battery 4. Reset circuit breaker 5. Examine & repair 6. Operator must be fully seated
4. Cart won't go, throttle system O.K., wiring harness O.K., battery weak	1. Loose wire(s) in cord reel or defective contacts 2. Loose wire in control box 3. Loose wire at key switch 4. Battery terminal loose 5. No power at wall socket 6. Faulty battery charger	1. Replace reel if necessary 2. Tighten / reconnect 3. Tighten / reconnect 4. Tighten / reconnect 5. Check for 110 volts 6. Replace battery charger
5. Cart goes but only at higher speed when throttle is at or near full "on"	1. Broken or cracked winding on rheostat 2. Throttle spring broken	1. Replace rheostat 2. Replace
6. Battery won't take a charge. Cart quits part way through shopping, after charging all night	1. Defective or old battery 2. Defective charger  3. See 4 (1) above 4. Defective line cord, plug 5. No power at wall socket	1. Replace battery 2. Needle on charger should move when plugged in. Test volt meter. 3. See 4 (1) above 4. Replace 5. Test, try different socket
7. Cart goes, but only at low speed, or for short duration with above conditions ruled out	1. Weak battery 2. Tire rubbing on body  3. Rheostat wiper arm not reaching full "ON" position 4. Drive belt loose 5. Power cord wrapped around tire 6. Defective wheel bearing 7. Low tire pressure (some models)	1. Charge or replace 2. Check wheel bearing or axle alignment 3. Adjust throttle plate  4. Tighten 5. Release & test cord 6. Replace bearing 7. Inflate to pressure shown on side wall. (NOTE: foam-filled tires will read "0" pounds pressure)
8. Cart won't go, or moves intermittently, or a grinding noise originates from motor	1. Motor gear broken 2. Motor brushes worn out 3. Motor bearing worn out 4. Pulley set screws loose 5. Drive belt loose	1. Replace gear or motor assembly 2. Replace brushes 3. Replace motor assembly 4. Tighten set screw 5. Tighten to $\frac{1}{2}$ " to $\frac{3}{4}$ " deflection
9. Cart won't go or operates in only "FWD" or only "REV". Above conditions ruled out	1. Defective "FWD/REV" switch 2. Safe-T-Stop faulty	1. Replace 2. Examine & Repair
10. Battery test meter won't operate	1. Loose wiring 2. Low battery 3. Defective switch 4. Defective meter 5. Throttle not fully actuated 6. Key switch not turned on	1. Tighten / reconnect 2. Charge 3. Check w / continuity tester 4. Check with volt meter 5. Twist throttle grip to full position speed 6. Turn key switch on
11. Seat won't swivel, rocks back & forth or swivels too freely	1. Worn swivel 2. Seat-lock engaged	1. Replace swivel or entire seat assembly 2. Move & hold locking lever forward, rotate seat

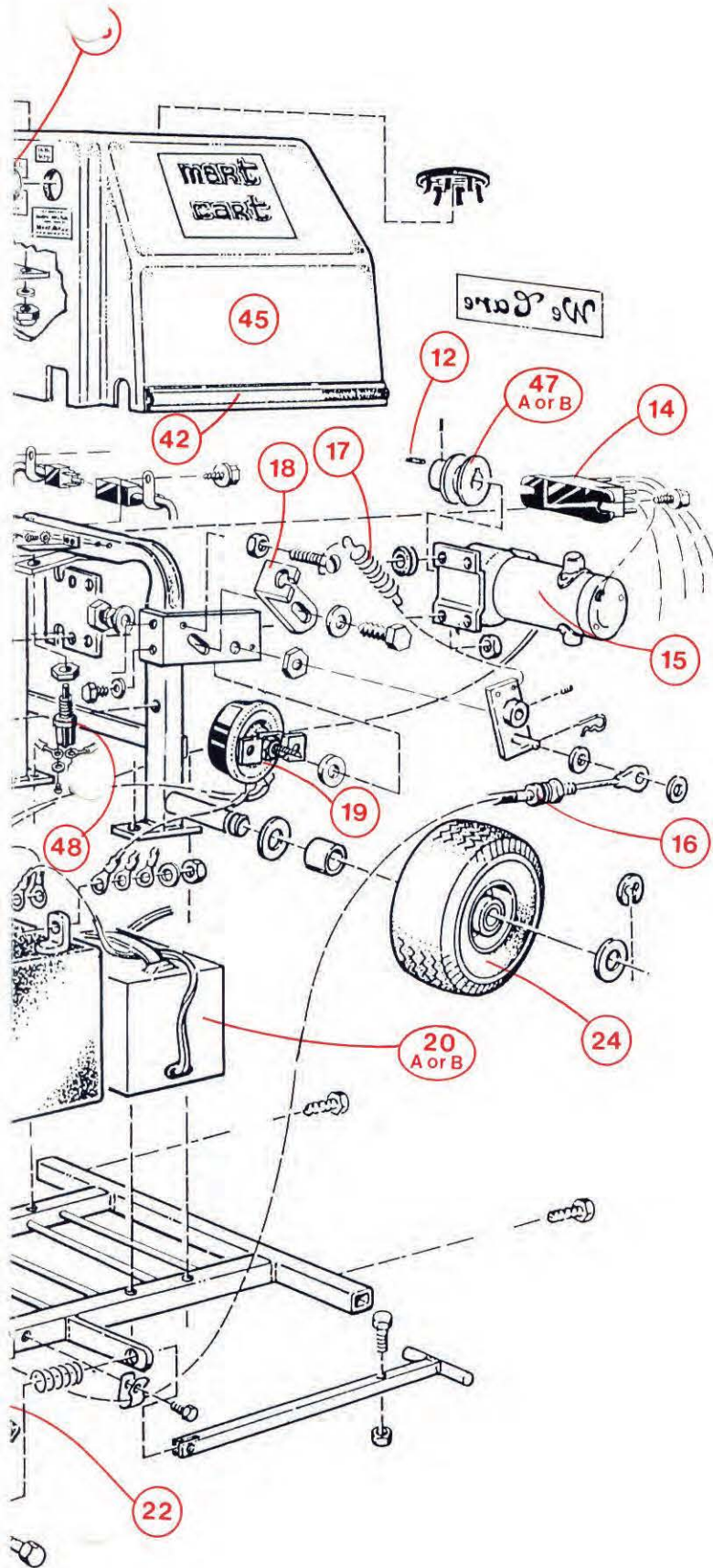


EXPLODED VIEW

FIGURE 1

DELUXE MODEL SHOWN

# mart cart



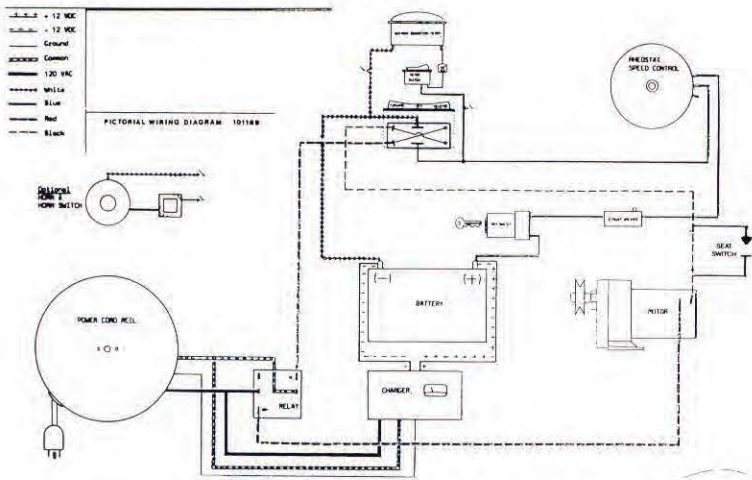
## IX. PARTS LIST

DRAWING #	PART #	COMPONENT NAME
1	200-1316	HAND GRIP FOR THROTTLE EXTENSION
2	200-8008	EXTENSION GRIP COMPLETE
3A	200-8005	MAIN THROTTLE GRIP ASSEMBLY
3B	200-8000	DUAL THROTTLE SUB-ASSY-1991
4A	200-1035	BATTERY CONDITION METER
4B	200-1354	BATTERY CONDITION METER (FLAT FACE)
6	200-1033	FORWARD - OFF - REVERSE SWITCH
7	200-1042R	STANDARD HAND GRIP
8A	200-1117	PAD FOR ARM REST
8B	200-1399	PAD FOR ARM REST
9	200-1119	SEAT (ONLY)
10	200-1122	SWIVEL PLATE, LOCKING
11	200-1120	SEAT PAD
12	000-1107	KEY FOR MOTOR / PULLEY SHAFT
14	200-1255	RELAY, 12 VDC, CHASSIS MOUNT
15	200-1091	MOTOR
16	000-0030	THROTTLE CABLE
17	000-1095	THROTTLE SPRING
18	000-1341	THROTTLE BRACKET
19	200-1356	RHEOSTAT SPEED CONTROLLER
20A	200-1334	BATTERY CHARGER WITH 18 INCH POWER CORD
20B	200-1365	BATTERY CHARGER WITH 6 FOOT POWER CORD
21	200-1006	BATTERY
22	200-1108	BRAKE PAD
23	200-1052	ANTI-TIP CASTOR
24	200-1330	FRONT & LEFT REAR WHEEL & TIRE
25	200-1017	CIRCUIT BREAKER
26	200-8015	FRONT CART TRIM, COMPLETE
27	200-1162	LEFT BASKET TUBE
28	200-1154	RIGHT BASKET TUBE
29	200-1100	LARGE GROMMET
30	000-1256	METAL DRESS WASHER
31	200-9000	BASKET WITH TRAY & TRIM
32	200-8030	BASKET TRIM, COMPLETE
33	200-8040	PRODUCE BASKET, COMPLETE
34	200-1016	ELECTRICAL HARNESS, MAIN
35	200-1142	KEY SWITCH
36	200-1346	FLOOR MAT
37	200-1331	DRIVE WHEEL W / 6" PULLEY
38	200-1129	INSTRUCTION PLATE
39	200-1027	BATTERY STRAP
40	200-1298	V-BELT (USED W / #37 DRIVE WHEEL)
41	200-1008	POWER CORD ASSEMBLY (NOT ALL MODELS)
42	200-8025	REAR CART TRIM, COMPLETE
43	200-9010	SEAT ASSEMBLY, COMPLETE
44	200-8050	FRONT FIBERGLASS COVER, COMPLETE
45	200-8060	REAR FIBERGLASS COVER, COMPLETE
46	200-1265	BOOT, CORD REEL
47A	200-1105	2" PULLEY
47B	200-1401	2½" PULLEY
48	200-1277	SEAT SWITCH
	200-4000	SET, MAINTENANCE-FREE TIRES
	200-4001	SET, PNEUMATIC TIRES & WHEELS, INCL. (2) 200-1015 & (1) 200-1309
	200-8035	ARM REST WITH PADS

NOT REQUIRED  
IF ALTERNATE  
GRIP USED

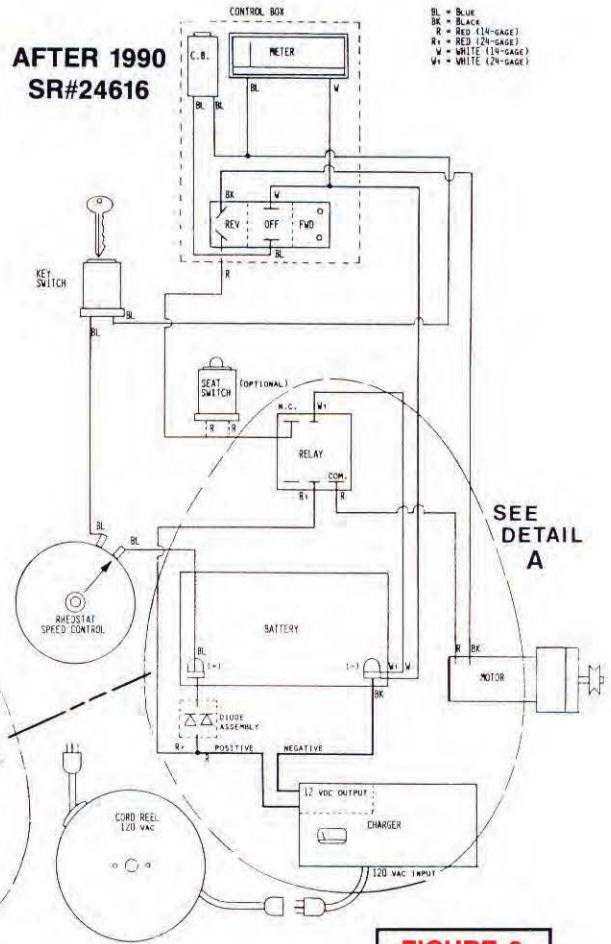
**X. PICTORIAL WIRING DIAGRAM:**

**PRIOR TO 1990 SR#24615**



**FIGURE 2**

**AFTER 1990  
SR#24616**



**FIGURE 3**

**XI. BATTERY REPLACEMENT:**

To replace the battery: (Read precautions on battery - avoid any sparks)

1. Shut off key switch and remove key.
2. Place forward-reverse switch in center "off" position.
3. Remove three screws that hold down rear cover. The one in front requires a screw driver. The two in the rear require a  $\frac{7}{16}$ " box wrench.
4. Lift the rear cover straight up and off the cart. Set on ground beside the cart being sure to pull out sufficient power supply cord to allow enough slack for cover movement. DO NOT remove power supply cord from cover unless cart is not equipped with a cord reel. If cart has no cord reel (cord will not extract), push cord plug through grommet hole, then lift rear cover.
5. Disconnect the negative & positive wire bundles from the two battery posts & remove the battery.
6. Install new battery w/ the negative post (-) towards the right rear of the cart - next to the drive wheel.
7. Connect the white and black leads to the negative post. Connect the blue & red leads to the positive post.
8. Secure battery with rubber strap or clamps. Check to be certain that the bundle of wires on the right side of the battery (next to drive wheel) are not rubbing the drive wheel pulley.
9. Before re-installing cover — check tire pressure (if applicable - tires may be foam-filled in which case pressure will read "0"), wheel condition, belt tension and general condition of other components.
10. Re-install rear cover. Be certain cord reel power supply cord is free to work properly. Make sure all three cover hold down screws are installed and tightened. (If without cord reel, place cover in position & push the cord plug back through the grommet hole.)
11. Test cart for proper operation. Charge battery for 10 hours maximum.

**IMPORTANT**

Your "Mart Cart" has been equipped with a gel-cel battery during the manufacturing process as original equipment. The manufacturer recommends that you replace the original battery only with the same type and rating to prevent possible damage to your cart's internal components, charging system, or personal injury to you and your customer. (Mart Cart part number 1006, item 21, pg. 6.)

**XII.**

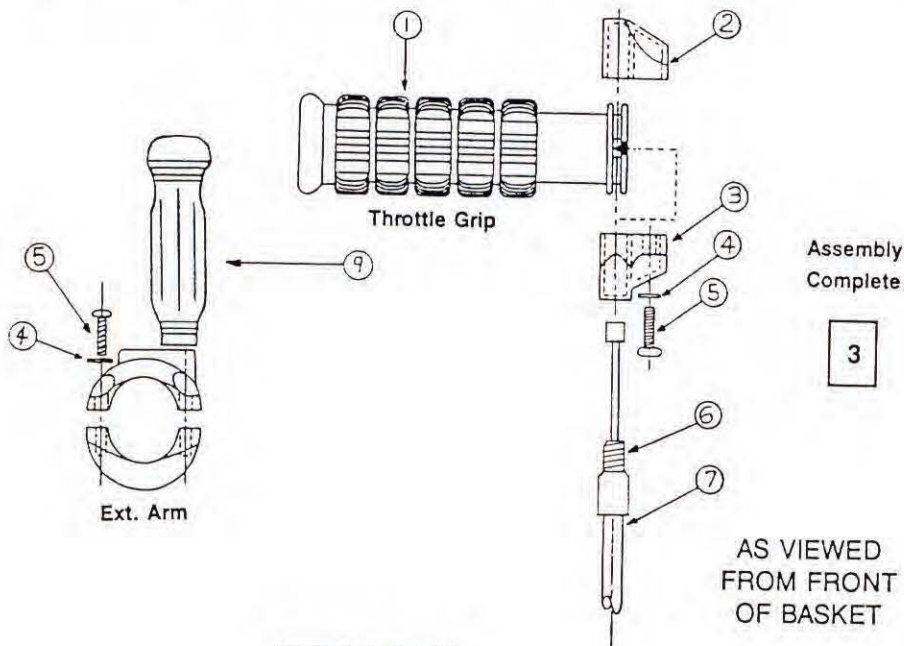
**THROTTLE CABLE REPLACEMENT:**

**A. STEPS TO REPLACING THROTTLE CABLE:**

1. Shut off key switch and forward-reverse switch
2. Turn to section VIII "Exploded View" pages 6 & 7, figure 1. The following parts will be considered:

DRAWING #	PART #	COMPONENT NAME
3	200-8005	MAIN THROTTLE GRIP ASSEMBLY
16	000-0030	THROTTLE CABLE
19	200-1356	RHEOSTAT SPEED CONTROLLER

3. Begin by dis-assembling the clamps (part #6072, drawing #2, fig. #4 below) that hold the main throttle grip assembly onto the steering handle bar. Notice that these clamps are closest to the black control box mounted on top center of the steering column. DO NOT remove the extension arm clamps (part #1042, drawing #2 exploded view page 6) unless this item needs replacement.
4. NOTICE that the main throttle grip clamp (drawing #2, fig. #4) mounted on the top of the steering column fits down over two screw heads. These heads prevent the clamp assembly from rotating around the cross bar on the steering column. Notice also that the lower half of the clamp has the throttle cable attached to it (drawing #3, figure 4 below)

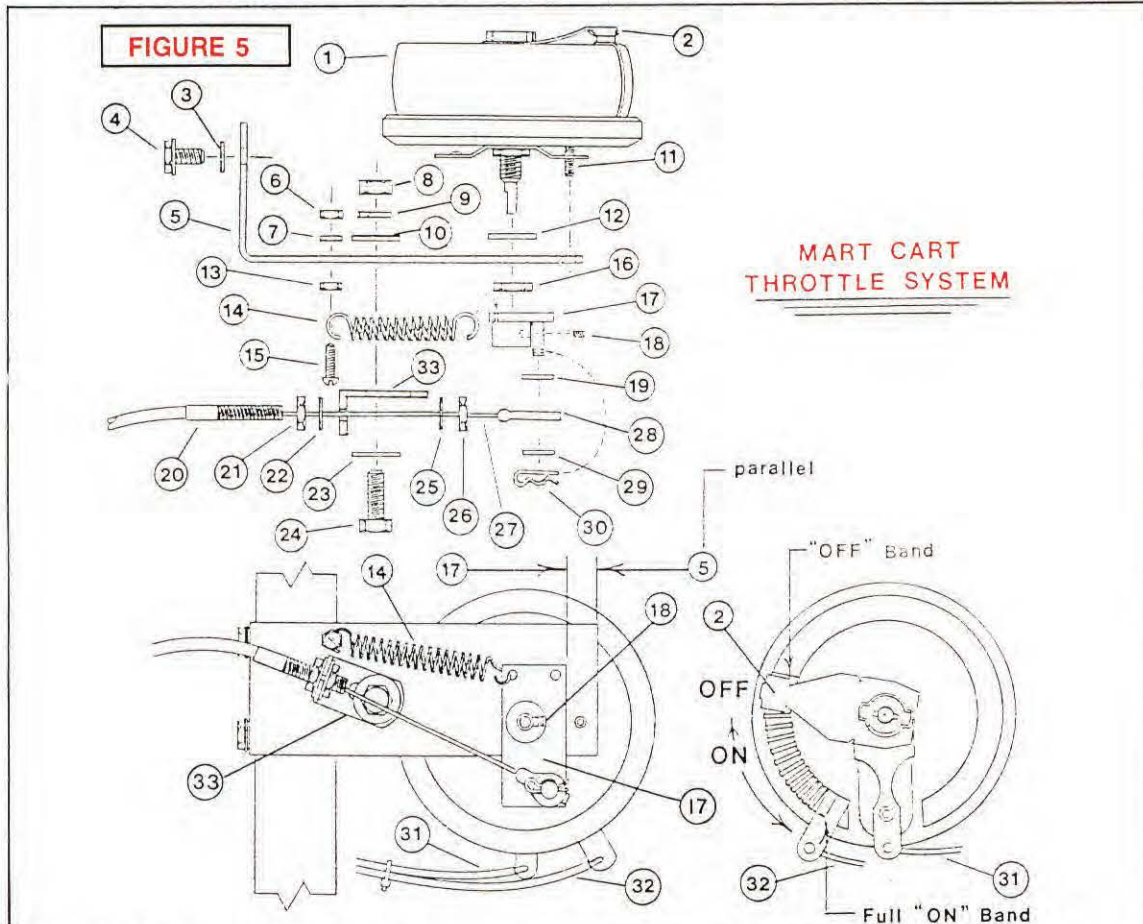


**FIGURE 4**

**EXTENSION ARM and THROTTLE GRIP ASSEMBLY**

DRAWING #	PART NO.	DESCRIPTION
1	200-8005	Throttle grip assembly with clamps (items 2 & 3).
1	200-1042A	Grip (aluminum w/extension arm, nylon w/o extension arm), casting & vinyl grip less clamps.
2	200-1042C	Clamp, throttle grip, upper. (set).
3	200-1042D	Clamp, throttle grip, lower. (set).
4	200-1042E	Washer, lock. Throttle grip assembly.
5	200-1042F	Screw, throttle grip & ext. arm assembly.
6	---	Adjustment screw (part of cable assembly)
7	000-0030	Cable, throttle assembly.
9	200-8008	Arm, throttle extension w / grip.

5. Slide the ball end of the throttle cable out of the take up spool on the end of the throttle grip. (see "arrow" in figure 4, page 9).
6. Remove the cable from the lower clamp by turning the adjustment screw (dwg. #6, figure 4) counter-clockwise.
7. Remove the rear cover of the Cart. See section XI "Battery Replacement" for instructions on removing the rear cover, page 8.
8. You are now ready to pull the throttle cable through the front housing (dwg. #44, figure 1) of the cart. Notice the routing of the throttle cable as shown on the exploded view drawing, pages 6 & 7. Start by feeding the cable down through the grommet in the front cover while pulling from the bottom side. Notice that the cable passes through a restraining clamp on the left upper chassis support near the base of the key switch. Pull the cable from front to back.



ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	200-1356	RHEOSTAT	17	000-1366	THROTTLE PLATE
2	NA	WIPER ARM, RHEOSTAT	18	000-6109	SET SCREW, THROTTLE PLATE COLLAR
3	000-1198	WASHER, SPLIT LOCK # 10	19	000-1201	WASHER, PLASTIC
4	000-1077	SCREW, SOCKET HEAD, TEK # 10 x 1/2	20	000-0030	CABLE, THROTTLE ASSEMBLY
5	200-1340	PLATE, RHEOSTAT MOUNTING	21	NA	NUT, THROTTLE CABLE
6	000-1185	NUT # 8-32	22	NA	WASHER, THROTTLE CABLE
7	000-1198	WASHER, SPLIT LOCK # 10	23	000-1234	WASHER, 1/4 USS
8	000-1082	NUT, 1/4-20	24	000-1144	SCREW, SOCKET HEAD, 1/4-20 x 3/4
9	000-1083	LOCK WASHER, 1/4	25	NA	WASHER, THROTTLE CABLE
10	000-1234	WASHER, 1/4 USS	26	NA	NUT, THROTTLE CABLE
11	000-1217	SET SCREW, SOCKET # 10/32 x 5/8	27	NA	WIRE, THROTTLE CABLE
12	NA	WASHER, RHEOSTAT ASSEMBLY	28	NA	EYELET, THROTTLE CABLE
13	000-1185	NUT, # 8-32	29	000-1201	WASHER, PLASTIC
14	200-1095	THROTTLE SPRING	30	000-1097	PIN, CABLE RETAINER, 3/32 x 37/64
15	000-1391	SCREW, # 8-32 x 3/4	31	NA	DARK BLUE LEAD TO BATTERY
16	NA	NUT, RHEOSTAT ASSEMBLY	32	NA	DARK BLUE LEAD TO CONTROL BOX
			33	200-1341	BRACKET, THROTTLE CABLE

Wiper arm adjustment (2). The wiper arm should rest on the "OFF" band when the throttle is released. It is permissible for the wiper arm to go beyond the "OFF" band and rest on the ceramic portion of the rheostat. When the throttle grip is twisted to the full "ON" position, the wiper arm should not cover more than 1/2 of the full "ON" band. The throttle plate (17) should be parallel to the rheostat mounting plate (5) when properly adjusted. Always secure set screw (18) and other fasteners. Check condition of spring (14) and other components when servicing.

9. Notice the large gentle loop in the cable as it comes off of the rheostat (drawing #19, figure 1, exploded view). When installing the new cable, you will want to maintain this loop. There should not be any tight bends in the new cable when it is installed.
10. Disconnect the cable from the throttle plate (drawing #17, figure 5) by pulling out the hair pin retaining the cable (dwg. #30, figure 5). Save the washer and pin.
11. Disconnect the cable from the cable mounting bracket (drawing #33, figure 5) by loosening the nut closest to the throttle cable eyelet (drawing #26, figure 5) and drawing #28, figure 5). Notice the position of the second nut (dwg. #21, figure 5) furthest away from the eyelet. This nut has been turned up onto the adjusting screw (dwg. #20, fig. 5) to allow for proper cable adjustment in relation to the wiper arm movement on the rheostat. When installing the new cable, set this nut (dwg. #21) up onto the adjusting screw on the new cable in the same relative position as on the old cable. This will give you a good starting point from which to make adjustments if necessary.
12. Install the new cable. Begin at the back of the cart by feeding the cable eyelet (dwg. #28, fig. 5) through the hole in the throttle cable bracket (dwg. #33, fig. 5). Be certain that one nut and one washer are on each side of the bracket as shown in figure 5.
13. Tighten nut (#26) closest to the eyelet (#28) up against the bracket (#33). Secure both nuts tight against bracket. (Ref. figure 5).
14. Place eyelet (#28) over spindle on throttle plate (#17, fig. 5). Be sure a washer (#19 & 29) is positioned on top and bottom of eyelet. Insert pin (#30) to retain cable.
15. Route the new cable through the retaining clamps from which you pulled the old cable through. **IMPORTANT:** DO NOT kink cable at any time. DO NOT USE if cable has been kinked. All bends should be gradual. The cable should move freely through the cable's housing when installed.
16. **IMPORTANT:** Be sure the new throttle cable is secured out of the way of the front wheel assembly when turning, clear of brake movement, and rear tire rotation.
17. Push the ball end of the cable up through the grommet in the front cover. You may want to lubricate the grommet or cable before pushing through. DO NOT remove the grommet to install the cable.
18. You are now ready to connect the cable to the clamp that holds the throttle grip to the steering column (drawing #3, figure 1). Feed the ball end of the cable through the clamp and screw in the nylon adjusting screw until it is tight.
19. Place the ball end of the cable into the receptacle on the end of the throttle grip. Slide this assembly onto the steering column. Place bearing grease onto the ball end and the bare cable. (HINT: To get the ball into the throttle, it may be necessary to disconnect the throttle return spring (#14, fig. 5). Be sure to re-connect later).  
**IMPORTANT:** Always check the condition of the throttle grip (dwg. #1, fig. 4) for wear or cracks. Replace if necessary.
20. Install top half of throttle grip clamp (dwg. #2, fig. 4). This clamp must be positioned directly over the 2 screw heads on the steering column crossbar. The throttle grip must be positioned inside the two clamps so as to twist freely.  
**IMPORTANT:** The throttle grip must stop rotating when it strikes a pin which has been inserted into the upper clamp. The grip must not bind against this pin when twisted to the full "ON" position. Also the extension arm assembly (dwg. #9, fig. 4) must rest parallel to the floor, facing the basket, when in the "OFF" position. The exploded view drawing of the cart shows the extension arm in the "OFF" position.(dwg. #1, fig. 1).
21. Once you have the throttle grip assembly back together test for proper action. First, pull back on the extension arm or twist the grip to the full "ON" position. The grip must stop against the pin in the upper clamp before the wiper arm on the rheostat reaches the stop built into the rheostat. If the throttle grip does not stop first two symptoms will appear: 1) The cable will "strangle the grip" causing the metal-ball-retaining-position of the grip to crack and break apart, OR 2) The force of the cable pulling on the rheostat wiper arm will crack and break the porcelain holding the wiper arm.
22. Turn to figure 5 and be certain the wiper arm on the rheostat does two things: 1) The wiper arm must not touch the wires that create the "ON" position when the throttle grip is resting in the "OFF" or forward position. AND 2) The wiper arm must not go beyond half way onto the last band of wire on the rheostat when in the fullest "ON" position.

**XII. THROTTLE CABLE REPLACEMENT:** Continued

23. You can adjust wiper arm movement by adjusting the nuts (dwg. #26 & 21, figure 5) on the adjustment screw (dwg. #20, figure 5) on the end of the throttle cable OR you can make adjustments by following the procedure shown at the bottom of figure 5.
24. Once you are certain of proper adjustments, you are ready to test the cart with power applied. Turn on key switch, select "forward" or "reverse", and twist the throttle grip slowly. The cart should slowly move with an increase in speed with further advancement of the throttle.

**XIII. SAFE-T-STOP (Optional)**

Another exclusive feature that keeps the MART CART years ahead of the competition. SAFE-T-STOP works in conjunction with MART CART's exclusive "Resilient Mounted Basket". When an object or person bumps the leading edge of the basket the cart instantly stops. Power to the motor is instantly cut off, stopping the continuous forward driving motion.

SAFE-T-STOP works so well it is now offered as optional equipment on all models.

**XIV. SAFE-T-STOP How It Works:**

When the Safe-T-Stop bumper touches the basket, a circuit is closed causing the cart to stop. In order for the cart to continue again, the operator of the cart must release the throttle grip allowing it to go to the full "OFF" position. The cart will resume operating when the throttle grip is re-activated.

In order for the Safe-T-Stop to work, 4 components are required: 1) Safe-T-Stop Lever (Bumper), (2) Microswitch or Mercury switch, (3) SCR (Silicone rectifier), and (4) a relay. These work in conjunction with each other to make up the Safe-T-Stop system.

This system is energized by a lead wire from the "positive" battery post to the microswitch or mercury switch. The mercury switch rests in a "normally open" position. When the throttle on the cart is advanced, the microswitch rotates (or mercury switch tilts), closing the circuit to the SCR. The SCR now waits in a stand-by mode for another signal (i.e., the closing of the external circuit: the bumper lever hitting the basket) before it closes an internal circuit going to the relay. When the bumper strikes the basket momentarily, the SCR passes power onto the relay. The relay is wired in a "normally closed" position. When energized by the SCR, the coil of the relay holds the contacts of the relay in an "open" position until the SCR is de-energized. The relay interrupts power to one of the motor leads. Thus, when the relay is energized by the SCR, the motor will not run. When the SCR is no longer energized, the motor relay contacts will once again close completing the motor circuit. In order for the SCR to be de-energized, the microswitch or mercury switch must return to its "normally open" or resting position. This is accomplished when the operator of the cart releases the throttle. The mercury switch is mounted on the spring loaded throttle plate which rotates when the throttle is twisted at the hand grip or released.

Trouble shooting the Safe-T-Stop system can be quite simple. If the cart won't run, bypass the SCR activated relay. To do this, simply join the positive motor lead wire together with a jumper wire across the two relay terminals where the two lead wires are attached. In so doing, you have by-passed the system entirely. Now, if the cart won't run your problem is not with the Safe-T-Stop system. You will have to trouble shoot the problem like any other cart that won't run.

Should the cart begin to function, however; then the problem rests with the Safe-T-Stop system. Even though the system can be easily by-passed as mentioned above or by disconnecting the positive lead wire to the microswitch (or mercury switch), it is recommended that you trouble shoot the cause of failure and repair.

If the cart won't run with the Safe-T-Stop system connected, there are three places to look:

1. Short in external circuit
2. Defective relay
3. Defective SCR

If the Bumper lever is touching any part of the basket or the wire lead going to the Bumper is touching the basket or shorting against the frame, a false signal will be sent to the SCR causing it to energize the relay.

If the relay does not reset itself to a "normally closed" position, then it must be replaced. To test the relay, simply disconnect the lead wire from the SCR. Use a continuity tester across the "normally closed" terminals (the ones to which the motor leads should be attached). There should be continuity across these terminals when the relay is non-energized.

XIV. **SAFE-T-STOP How It Works:** Continued

To test the SCR, there should be no continuity across the center leg of the SCR and the leg with the lead going to the relay coil when power to the SCR from the microswitch (or mercury switch) has been disconnected. It is important that the mercury in the switch does not make contact with its internal terminals when the switch is in a resting position (throttle closed).

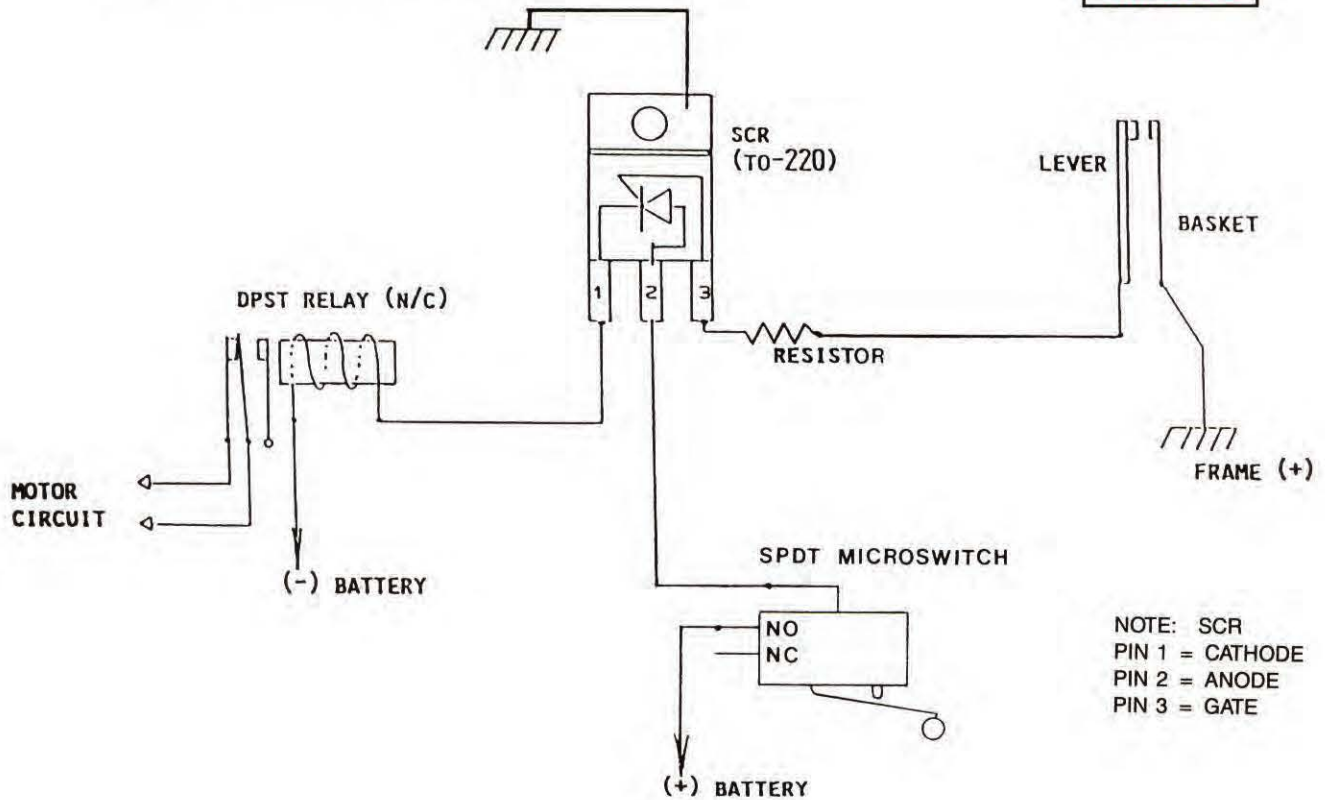
Due to the high rate of reliability of SCR's, microswitches (or mercury switches), and relays, it is likely that most problems encountered will be associated with daily abuse of the bumper or possible jarring and mis-alignment of the mercury switch. Replacement microswitches (or mercury switches) and SCR's will be provided with pre-soldered leads and insulators for easy replacement.

**CAUTION:** The SCR is a "positive D.C. operative" circuit. NEVER APPLY ANY NEGATIVE CURRENT TO THE SCR OR COMPONENT WILL BE DESTROYED!

Do not by-pass resistor to SCR or component failure may result!

XV. **SAFE-T-STOP Wiring Diagram:**

FIGURE 6



ELECTRICAL CIRCUIT SAFE-T-STOP

XVI. **DRIVE BELT**

1. The drive belt is shown in the exploded view drawing on page 6. See drawing #40. On account of the slow speed at which the motor turns and due to the heft of the belt used, your belt should never require replacement. For this reason Mart Cart offers a lifetime limited parts warranty on the drive belt.
2. Proper belt tension will extend the life of the drive system components. The drive belt is installed by the factory using 20 ft. lbs. of torque. This results in a belt that when pressed in the center will deflect approximately 1/2" to 3/4".
3. Proper belt tension will reduce belt wear, increase drive wheel bearing life, reduce drive train shock when the cart is switched from "forward" to "reverse" or vice versa, and increase motor gear and bearing life.

XVI. **DRIVE BELT** Continued

4. To adjust belt tension:
  - Shut off power, remove key.
  - Remove rear cover (see section XI). Keep fingers clear of belt & pulleys!
  - Locate and loosen the two motor mounting plate bolts which pass through the frame.
  - Pry upwards on the motor plate until belt is tight (1/2" deflection).
  - Test cart by driving in forward and reverse. A small amount of slippage is desirable when making rapid changes in direction. The belt should not be so tight as to cause the cart to jerk when switching rapidly from forward to reverse or vice-versa. On the otherhand, the belt should not be so loose as to not allow the cart to move when fully loaded.

XVII. **CIRCUIT BREAKER**

1. The circuit breaker is designed to protect your electrical system from transient overloads or electrical shorts. Either could cause serious damage without a circuit breaker to open the circuit.
2. Mart Carts manufactured after January 1, 1990 have the circuit breaker mounted under the control box cover on top of the steering column. It is a "manual" type breaker rated at 15 amps. It requires resetting once it has been activated. It will not reset itself automatically for safety reasons. To reset the breaker insert a pen or pencil point into the circuit breaker access hole on the front left of the control box cover. Press inward on the circuit breaker button until a "clicking" sound is heard. The cart should now be ready to operate providing the cause for the circuit breaker tripping was not serious enough to trip the breaker a second time.
3. Mart Carts manufactured before 1990 have their circuit breaker mounted under the front cover as shown in the exploded view drawing on page 6.
4. Some of the most common causes for the circuit breaker to open are:
  - 1) Low tire pressure
  - 2) Worn wheel bearings which cause...
  - 3) Tires rubbing body of cart
  - 4) Short in "forward-off-reverse" switch
  - 5) Short in wiring harness - usually located at base of steering column on carts manufactured prior to 1986.
  - 6) Activating throttle while pressing brake pedal.

XVIII. **SEAT SWITCH** (Standard on deluxe model)

1. The seat switch is a standard feature on all deluxe mart carts and optional on other models.
2. The seat switch consists of a plate and rod assembly mounted under the chairs seat pad. Pressure downwards on the seat pad causes the rod to depress a spring-steel plate which rests on top of a 60 amp rated push button switch. This switch closes the circuit to the motor. The cart will not operate if this switch is not depressed.
3. Seat switch adjustments can be made by putting pressure upwards or downwards on the switch support bracket located under the rear cover. **NOTE:** Foreign objects between seat pad and chair may prevent the plunger rod from operating properly.

XIX. **RELAY, CHARGING** (Standard on any models with cord reel)

1. This relay is located under the rear cover. It is mounted to the frame of the cart closest to the rheostat or furthest from the drive wheel, (see exploded view, drawing #14, page 7).
2. The relay is wired in the "normally closed" position. When the coil of the relay is energized the relay contacts "open" the motor circuit. This is to prevent the motor from operating while the battery is being charged. This will also prevent potential damage to your charging system — cord, cord reel, charger, and electrical outlet.
3. **HOW IT WORKS:** When the power supply cord is plugged into the store's electrical outlet the battery charger is energized. The charger sends approximately 14.5 volts to the battery for charging. Along the way the coil of the charging relay is also energized. It will remain energized until the power to the charger is disconnected. The motor circuit is interrupted until charging is complete. When the charger is unplugged the motor circuit through the relay will be "closed" again.

**XIX. RELAY, CHARGING** Continued

4. You can tell if the relay is working properly if you hear a distinct “clicking” sound coming from the relay when you plug in the power supply cord. Also, the cart should not operate while charging.

**XX. CORD REEL** (Standard on deluxe model, Optional on all others)

1. The cord reel has been provided to save you hundreds of man hours in trying to find an extension cord to charge your cart on a daily basis. It will also keep the cord stored in a safe, protected place, out of sight, where customers can neither see it or trip over it.
2. The cord reel will give you years of trouble-free service providing the simple operating instructions posted on the cart are followed. (See “Operating Instructions” on page 3).
3. Most cord reel failures are due to abuse such as tugging on the cord to pull the cart plug, or by not letting the reel retract the cord and the operator shoves the cord into the cart’s rear housing. The cord gets tangled around the rear wheel which in turn pulls on the cord and damages the reel. Although a rubber boot has been installed between the cart housing and the cord reel to prevent the cord from being shoved in, a heavy handed operator may try to push the cord past the boot.
4. Always inspect the condition of the power supply cord on a daily basis. Replace the reel if the cord or plug is damaged or if reel does not function properly.

**IMPORTANT:** A ground fault circuit interrupter (GFCI) should be used in your store’s electrical outlet where you intend to draw current to charge your cart.

**XXI. VARIABLE SPEED CONTROL**

1. The cart’s speed is regulated by a heavy duty rheostat. This device provides extremely smooth acceleration from 0 to 1.3 MPH.
2. The rheostat is located nearest the left rear wheel and slightly above, (see the exploded view, drawing #19, page 7).
3. Although rheostat failures are very uncommon, the majority have been due to improper throttle cable installation. In most instances the wiper arm on the rheostat has not been allowed to retract off of the last band of energized wire. The rheostat then overheats and, like a fuse, quits working. In some instances, the throttle cable allowed the operator to pull the wiper arm too far causing the arm to strain against a built-in stopping mechanism. This mechanism will break if too much strain is placed on it. See section XII for proper throttle cable replacement.

**XXII. MOTOR MAINTENANCE**

1. There is no scheduled maintenance required. However, when the rear cover of the cart is removed for other reasons (such as to replace the battery) the motor should be examined.
2. What to look for - check the belt tension (see section XVI), check for any motor shaft seal leakage, check the motor mounts, check the brushes at least once every 5 years.
3. Motor brushes - there are two brushes at the rear end of the motor, one on top and one on the bottom. They are each located inside a small round plastic housing. A small screwdriver may be used to back out each brush. If your motor stops running, worn brushes could be the cause. Due to the fact that your motor has external brushes they will outlast internal brushes which are smaller and they are easier to replace.

**XXIII. FOOT BRAKE**

1. The foot brake does not require any scheduled maintenance.
2. In order for the brake to offer maximum efficiency the left rear tire should be filled with air (if not foam-filled) to its maximum rating. Also, the rear wheel bearings should be checked and replaced if excessive play is found.

**XXIV. TIRE AND WHEEL REPAIR** (For proper pressures of pneumatic tires see section V.)

1. The large 10" tires will provide many years of long tread wear before requiring replacement. The tires should be replaced when the tread is worn off or if there are signs of aging such as peeling of the tread or cracking of the side walls.
2. Foam-filled tires require no air, therefore the only maintenance is described in (1) above. They are distinguished from pneumatic tires by a "0" pounds pressure reading when checked with an air gauge. On models with pneumatic tires, flats usually result from failure to keep the tires inflated, a puncture of the tire, or a leaky valve stem.
3. Tire and wheel removal has been made easy as the axles are equipped with snap rings.
4. Pneumatic tires are equipped with an inner tube. Most lawn mower dealers have repair facilities that handle the inner tubes and flat repair work at a nominal fee. "Fix A Flat™" works well to seal a puncture and inflate the tire without having to remove the wheel.

**XXV. SEAT ASSEMBLY:**

1. The seat assembly may consist of the following items all of which are replaceable: the chair, tubular arm rest, plastic arm rest pads, seat cushion, and chair swivel plate.
2. The swivel plate should be lubricated with grease at least once a year. It should also be examined for excessive play. It should be replaced when the chair rocks back and forth on the plate or when the chair swivels too freely.
3. Seat-lock should be inspected daily for proper function. The release/locking arm should move forward freely, and spring back into one of four locking positions. If return spring is broken, DO NOT USE cart until spring is replaced.

**XXVI. CONTROL BOX**

1. The master control box is located on top of the steering column. It contains the "forward-off-reverse" switch, the battery condition meter, and when ordered the horn and horn switch. Under the cover is the circuit breaker (units manufactured after January 1, 1990).
2. The cover can be removed by removing the two side screws. All components can be replaced if necessary.

**XXVII. WARRANTY**

- A. PARTS: 1 Year Limited Warranty from date of shipment.
- B. BATTERY: Full Warranty first 9 Months from date of shipment.
- C. LABOR: 1 Year Limited Warranty

**A. PARTS - Limited Warranty**

All parts, except battery (See B. Battery below) flat tires (when applicable to some models), and circuit breaker needing resetting, are warranted by the manufacturer to be free from defects in material and work-manship for a period of 1 year from date of shipment. This warranty does not include wear and tear caused by above — normal usage, abuse, negligence, freight damage, or damage caused by improper use or care, or by outside sources such as fire, floods, etc.

Should any component fail (except those mentioned) during the first year of ownership, return component in question to the manufacturer or authorized representative for inspection. If component has failed due to defect in material or workmanship, it will be exchanged or repaired at the manufacturer's discretion at no charge to the owner.

**B. BATTERY**

The battery is fully warranted up to and including the first 9 months from date of shipment, and prorated based on the net price of the battery 10 through 12 months from the date of shipment.

**C. LABOR**

The manufacturer will cover labor charges for work performed in the field for one full year from the date of shipment as a result of defect in materials and workmanship. Charges incurred for resetting the circuit breaker are exempted. Double service calls due to improper first-call service or lack of repair parts are exempted.

**The above warranties exclude shipping, handling, or travel expenses incurred for the repair of said cart or parts as well as items worn out through normal use whose malfunction is not attributable to defect.**