

BAT2000 20" Battery Burnisher

**Operator's Manual
and Parts Schematic**

Item #87300

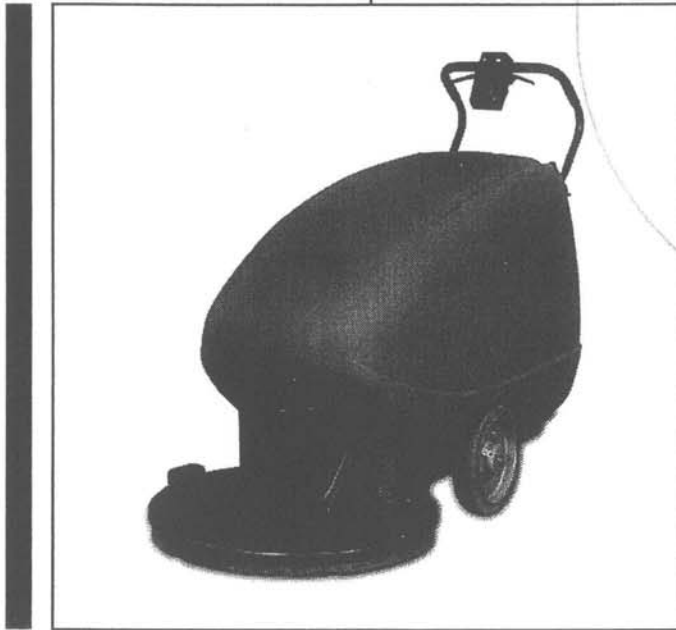


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INSPECTION

Carefully unpack and inspect your machine for shipping damage. Each unit is operated and thoroughly inspected before shipping, and any damage is the responsibility of the carrier, who should be notified immediately.

IMPORTANT SAFETY INSTRUCTIONS

The following symbols are used throughout this guide as indicated in their descriptions:

HAZARD INTENSITY LEVEL

There are three levels of hazard intensity identified by signal words -**WARNING** and **CAUTION** and **FOR SAFETY**. The level of hazard intensity is determined by the following definitions:

WARNING

WARNING - Hazards or unsafe practices which **COULD** result in severe personal injury or death.

CAUTION

CAUTION - Hazards or unsafe practices which could result in minor personal injury or product or property damage.

FOR SAFETY: *To identify actions which must be followed for safe operation of equipment.*

Report machine damage or faulty operation immediately. Do not use the machine if it is not in proper operating condition.

Following is information that signals some potentially dangerous conditions to the operator or the equipment. Read this information carefully. Know when these conditions can exist. Locate all safety devices on the machine. Please take the necessary steps to train the machine operating personnel.

For SAFETY:

DO NOT OPERATE MACHINE:

Unless Trained and Authorized.

Unless Operation Guide is Read and understood.

In Flammable or Explosive areas.

In areas with possible falling objects.

WHEN SERVICING MACHINE:

Avoid moving parts. Do not wear loose clothing; jackets, shirts, or sleeves when working on the machine.

Use Windsor approved replacement parts.

WARNING

This appliance has been designed for use with the brushes specified by the manufacturer. The fitting of other brushes may affect its safety.

WARNING

Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away. Keep covers open when charging.

When using battery powered machines basic precautions should always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING MACHINE

WARNING

To reduce the risk of fire, electric shock or injury:

1. Use only indoors. Do not use outdoors or expose to rain.
2. Do not allow machine to be used as a toy. Close attention is necessary when used by or near children.
3. Use only as described in this manual. Use only manufacturer's recommended components and attachments.
4. Do not operate machine with any opening blocked. Keep openings free of debris that may reduce air flow.
5. Keep hair, loose clothing, fingers and all parts of the body away from openings.
6. Do not use machine as a step.
7. Machine can cause a fire when operating near flammable vapors or materials. Do not operate this machine near flammable fluids, dust, or vapors.
8. This machine is not suitable for picking up health endangering dust.
9. Maintenance and repairs must be done by qualified personnel. Maintain adjustments on machine as specified.
10. Make sure all warning and caution labels are legible and properly attached to the machine.
11. Keep hands, feet, strings and ties from all moving parts while the machine is in operation.
12. Do not allow engine to run unattended.
13. Do not leave the machine unattended. Turn machine off when not in use and before servicing.
14. If the machine is not working properly, has been dropped, left outdoors or dropped into water, return it to an authorized service center.

WARNING

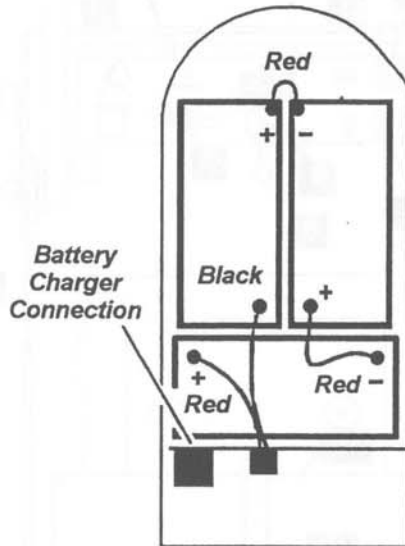
Hazardous Voltage. Shock can result. Disconnect batteries before working on machine. Only qualified personnel should work inside machine

WARNING

Machine can emit excessive noise. Consult with your regulatory agency for exposure limits. Hearing loss can result. Wear hearing protection.

SAVE THESE INSTRUCTIONS

BATTERY ARRANGEMENT



Battery Maintenance:

1. When cleaning batteries use a solution of baking soda and water. (Do not allow cleaning fluid to enter inside battery cells.)
2. Keep a proper electrolyte level in battery cells.
3. Wipe down the battery tops at least once a week. If a cell should accidentally overflow, clean immediately.
4. Test battery condition with a hydrometer at least once a week.
5. Ensure that all connections are tight and that all corrosion is removed.
6. Every 4 to 6 months remove batteries from the machine and clean the battery compartment.

Battery Charging Procedure:

Charge the batteries once the amber charge level light comes on. The amber light indicates that there is about 20% charge left in the batteries. **Do not let the batteries completely drain before charging.** Avoid charging the batteries before the amber light comes on. The machine will run for hours on fully charged, well maintained batteries.

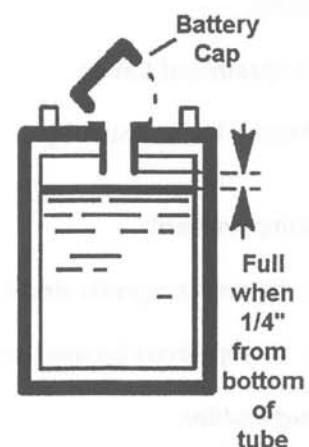
WARNING:

DO NOT SMOKE, HAVE OPEN FLAMES, OR SPARKS NEAR BATTERIES AT ANY TIME.

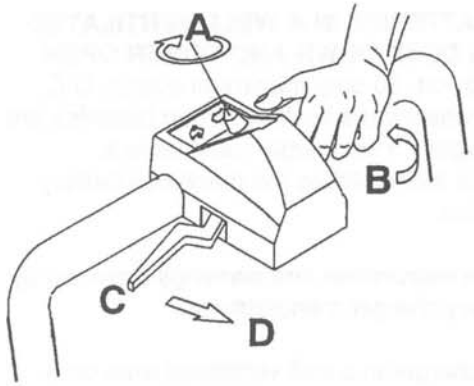
WEAR EYE PROTECTION AND PROTECTIVE CLOTHING WHEN WORKING WITH BATTERIES.

CHARGE BATTERIES IN A WELL VENTILATED AREA WITH DECK DOWN AND COVER OPEN.

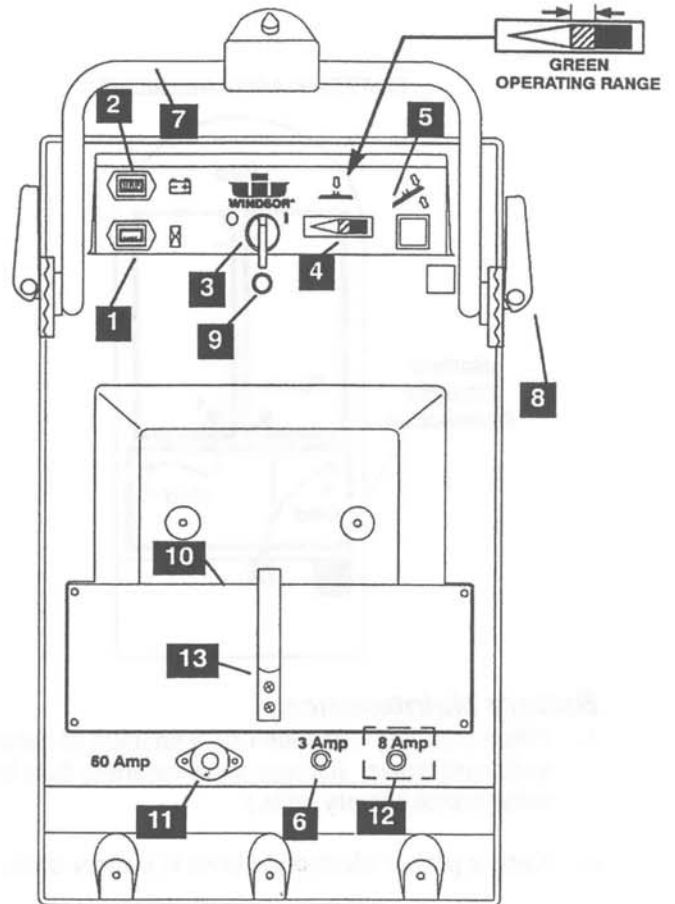
1. Use a 36 volt, 20 amp maximum output, D.C. charger which turns itself off, when batteries are fully charged. The charger must have a connector that matches the machines battery connection.
2. Read the instructions and warnings provided by the battery charger manufacturer.
3. Set the charger in a well ventilated area on a level surface. Make sure cords will easily reach outlets on both machine and wall.
4. **Connect charger to D.C. outlet on machine first.**
5. Connect the A.C. power cord to properly grounded wall socket. **NEVER MAKE THE A.C. CONNECTION FIRST, HAZARDOUS SPARKS MAY RESULT.**
6. After the batteries are completely charged disconnect the charger from the A.C. wall socket.
7. Once the charger is disconnected from the A.C. wall socket, it is safe to disconnect the charger from the machine.
8. When the batteries are fully charged, check the electrolyte level by removing, the caps on top of the batteries. If necessary fill the cells with distilled water as shown in the diagram below. Be careful not to overfill cells.



CONTROLS:



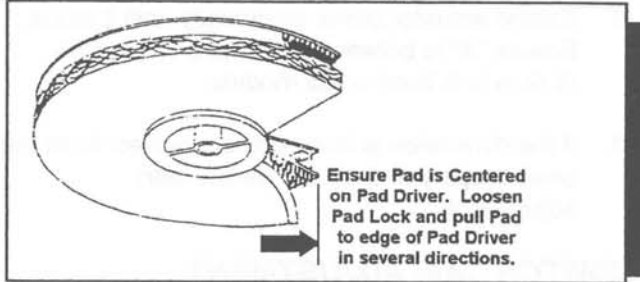
- A. The speed the machine will travel is regulated by the knob located on the controls which are found on the main handle. Turn the knob to the right to increase the speed of the machine.
- B. Squeezing one or both of the controls levers will propel the machine forward at the selected speed, and turn on the pad motor.
- C. Releasing both controls levers will stop the machine.
- D. Pressing forward on the levers moves the machine backwards at the selected speed. (Pad motor does not run in reverse).



1. **Hour Meter.** Records machine use time.
2. **Battery Condition Light.** Indicates the charge condition of batteries.
3. **Main Power Switch.** Turns On and Off the machine.
4. **Pad Pressure Meter.** "Green Area" indicates correct pad pressure range.
5. **Buffing Deck Switch.** Raises and lowers buffing deck, adjusts #4.
6. **3 Amp Circuit Breaker.** Thermal circuit breaker protects lift mechanism. Press to reset.
7. **Main Handle.**
8. **Handle Adjustment Lever.**
9. **Brush Wear.** Red indicator light. Worn carbon brushes need to be replaced before damage to motor occurs.
10. **Utility Compartment.**
11. **Breaker.** 60 amp magnetic circuit breaker, protects pad driver motor. To reset turn to "ON" position.
12. **Breaker.** 8 amp circuit breaker protects propel motor. Press to reset.
13. **Spare Pad Holder.**

BEFORE STARTING THE WORK PERIOD:

1. Disconnect the battery charger. (See battery charging procedure).
2. Close the cover.
3. To raise the deck: Turn on the main power switch and press the buffing deck switch.
4. Turn or install a new buffing pad as needed.



5. Check wheels and other pivot points for proper lubrication.

OPERATING THE MACHINE:

1. If using a machine which was already set up, check to make sure the pad is properly installed.
2. Adjust the operating control handle to a comfortable position using the handle lock lever.
3. Turn on the main power switch.
4. Lower or raise deck by pressing buffing deck switch.
5. The pad motor will only run when the buffing deck is lowered to within 4 inches of the floor.
6. The drive controls are shown on page 5.
7. The pad pressure is adjusted using the switch which raises and lowers the front deck. The operator monitors the amp draw using the meter located on the control panel and ensures that the needle remains in the "green" operating range. (See page 5, #4 & 5).



CAUTION

To prevent possible damage to the floor surface, always keep the machine moving while the pad is spinning.

8. When the drive lever is squeezed, the pad motor runs and the machine is propelled forward.
9. When the drive lever is released, the drive motor and pad motor will stop.
10. Return the machine to the battery charger when the battery light indicator light is amber. Do not operate machine when indicator is flashing red.

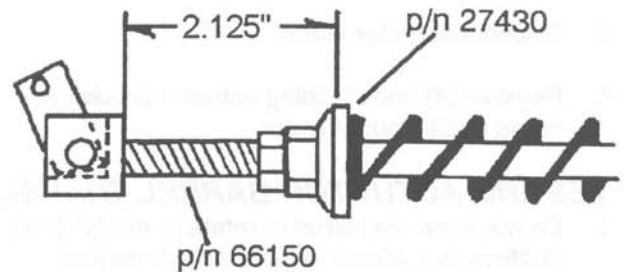
FILTER BAG

The filter bag is accessed under the cover.

FELT DUST CONTROL SKIRT

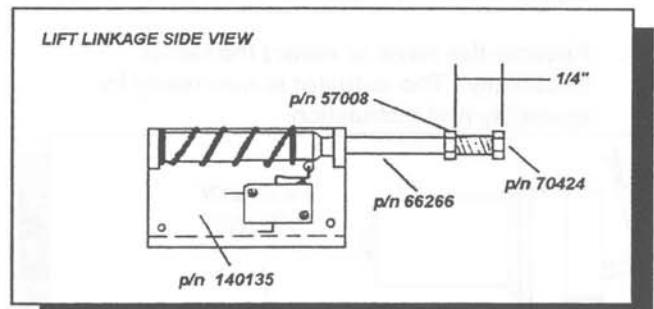
Replace skirt (p/n 73620) when excessively soiled, worn, torn, or damaged in any way that allows dust to escape.

Located inside the shroud the dust control skirt is easily replaced. Each slot on the skirt slips onto a tee nut inside the shroud.



ACTUATOR SPRING

To ensure pad pressure consistency, the distance between the bottom of the cap spring (p/n 27430) and the flange on the actuator pivot (p/n 66150) should be 2.125" (see above).



LIFT LINKAGE

To ensure that the pad is at the proper height when in the "ready" position, the distance between the edge of the safety switch bracket (p/n 140135) and the end of the plunger assembly (see above) must be 1/4".

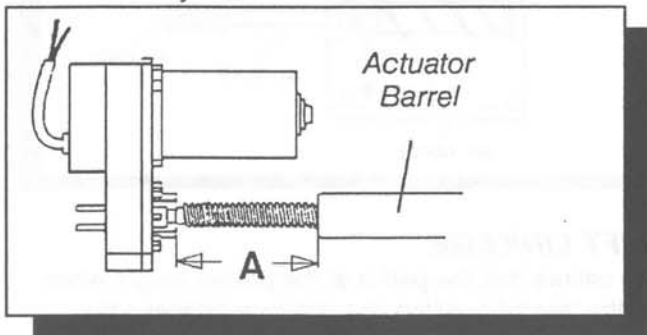
ACTUATOR INFORMATION

ACTUATOR REMOVAL

1. Switch on main switch and lower buffing head to floor. Switch off main switch.
2. Remove main cover and batteries.
3. Lay machine on left side.
4. Remove actuator connecting lift link #42 on page 16.
5. Disconnect motor leads.
6. Remove (4) bolts holding actuator bracket to frame and lift out actuator.

TESTING ACTUATOR BARREL TRAVEL

1. Do not allow the barrel to rotate or the $\frac{1}{2}$ "-9/16" (1.25cm to 1.40cm) adjustment will be lost.
2. Connect white wire to the (+) positive post and the black wire to the (-) negative post of the 36VDC power supply to retract the barrel to the lower limit.
3. Black wire to the (+) positive post and the white wire to the (-) negative post of the 36VDC power supply to extend the barrel to the upper limit.
4. Reverse the wires to retract the barrel electrically. The actuator is now ready for assembly and installation.



LOWER ADJUSTMENT

1. Connect the white wire to the (-) negative post of a 36VDC power supply and the black wire to the (+) positive post. This will retract or close the actuator barrel. Maintain the connection until the limit switch shuts the power off.
2. Disconnect both wires from the power supply. Set "A" (barrel to frame gap) at between $\frac{1}{2}$ and 9/16 of an inch (1.25cm to 1.40 cm) rotating by hand.

UPPER ADJUSTMENT

1. **Hold Barrel With Hand**
Reverse the wire connections to the 36VDC power supply, white wire to the (+) positive post and the black wire to the (-) negative post. This will extend or open the actuator barrel.

Do not allow barrel to rotate.

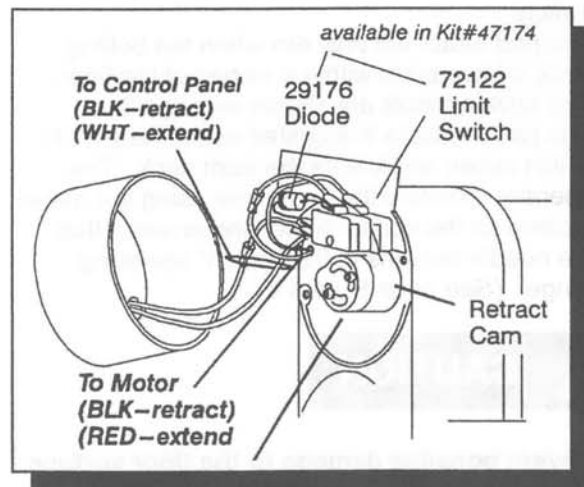
2. Extend actuator barrel electrically until it stops. Ensure "A" is between $3 \frac{3}{4}$ and $3 \frac{7}{8}$ inches (9.5cm to 9.9cm) on all models.
3. If the dimension is incorrect, disconnect from the power supply and set the switch cam adjustment.

SWITCH CAM ADJUSTMENT

1. Remove the two cam switch covers screws (TORX T15) and remove cam switch cover.
2. Loosen the two cam lock screws (TORX T20) on the cams.

CAUTION

Do not allow retract cam to rotate.



3. If the "A" dimension is incorrect, turning the cam clockwise will INCREASE "A": counterclockwise will DECREASE "A".
4. Tighten the two cam lock screws and cycle the actuator. **Do Not Allow The Barrel To Rotate.** Check the extended "A" dimension. If it is correct, replace the cover with screws. If not, repeat #3 above.

WEEKLY MAINTENANCE

1. Use a hydrometer to check the condition of each battery cell.
2. Check battery cable clamps. Ensure clamps are tight on battery terminals.
3. Clean tops of batteries with a wet cloth and a solution of water and baking soda. Wipe battery tops dry after cleaning.
4. Check pad lock for looseness or damage.
5. Check filter and filter seals. Airflow should be unobstructed through filter.
6. Ensure that the chain, the pivot points and casters are properly lubricated.
7. Tighten any loose screws or nuts.

4 TO 6 MONTH MAINTENANCE

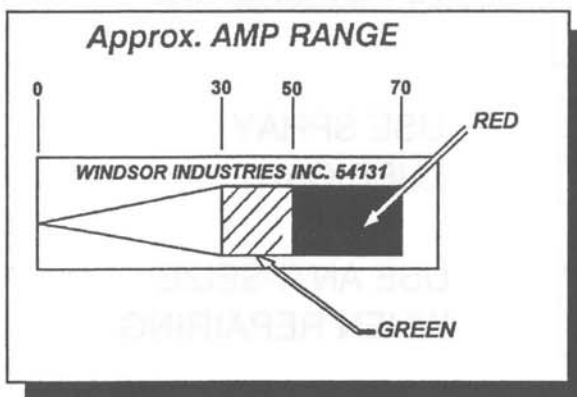
1. Remove batteries-clean battery tray and battery compartment.
2. Clean battery cable clamps and battery terminals.
3. Check the drive chain tension. Tighten, clean and lubricate if necessary.
4. Check the carbon motor brushes in the pad driver motor. (#17 on page 20)
5. Use a vacuum to remove lint or dust build-up from motor windings.

AT THE END OF EACH WORK PERIOD:

1. Wipe down the exterior of the machine.
2. Lower the deck.
3. Open the cover.
4. Charge the batteries. (See battery charging procedure on page 4.)

SHUNT ADJUSTMENT (Cont.)

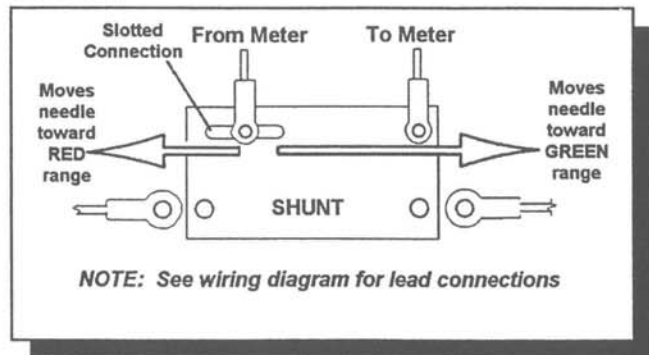
Check the amp range when nuisance tripping of the circuit breaker indicates that the shunt may be out of adjustment.



1. Connect a DC ampere meter to the positive battery lead. Running the machine with a pad: lower the pad to the floor until it is operating at 50 amps.
2. Moving the wire in the slot, adjust the pad pressure meter until the needle sets at the line between the green and red areas.
3. Check the other points indicated in the diagram above. The high end should trip the circuit breaker. Replace the pad pressure meter if the approximate amp ranges shown can not be set.

SHUNT ADJUSTMENT

This pad pressure meter adjustment is factory set. Over the course of time it may become necessary to adjust this setting using the slotted connection on the shunt.



LUBRICATION & NOTES

The following symbols found throughout the manual indicate items requiring lubrication:



APPLY GREASE



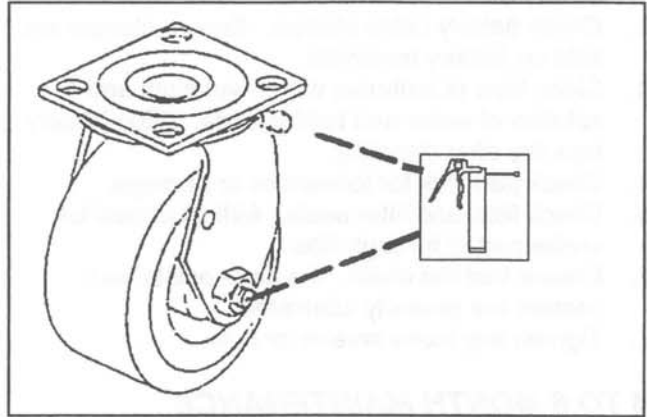
USE SPRAY
LUBRICANT



USE ANTI-SEIZE
WHEN REPAIRING



PERMANENT (RED)
THREAD LOCK TIGHT

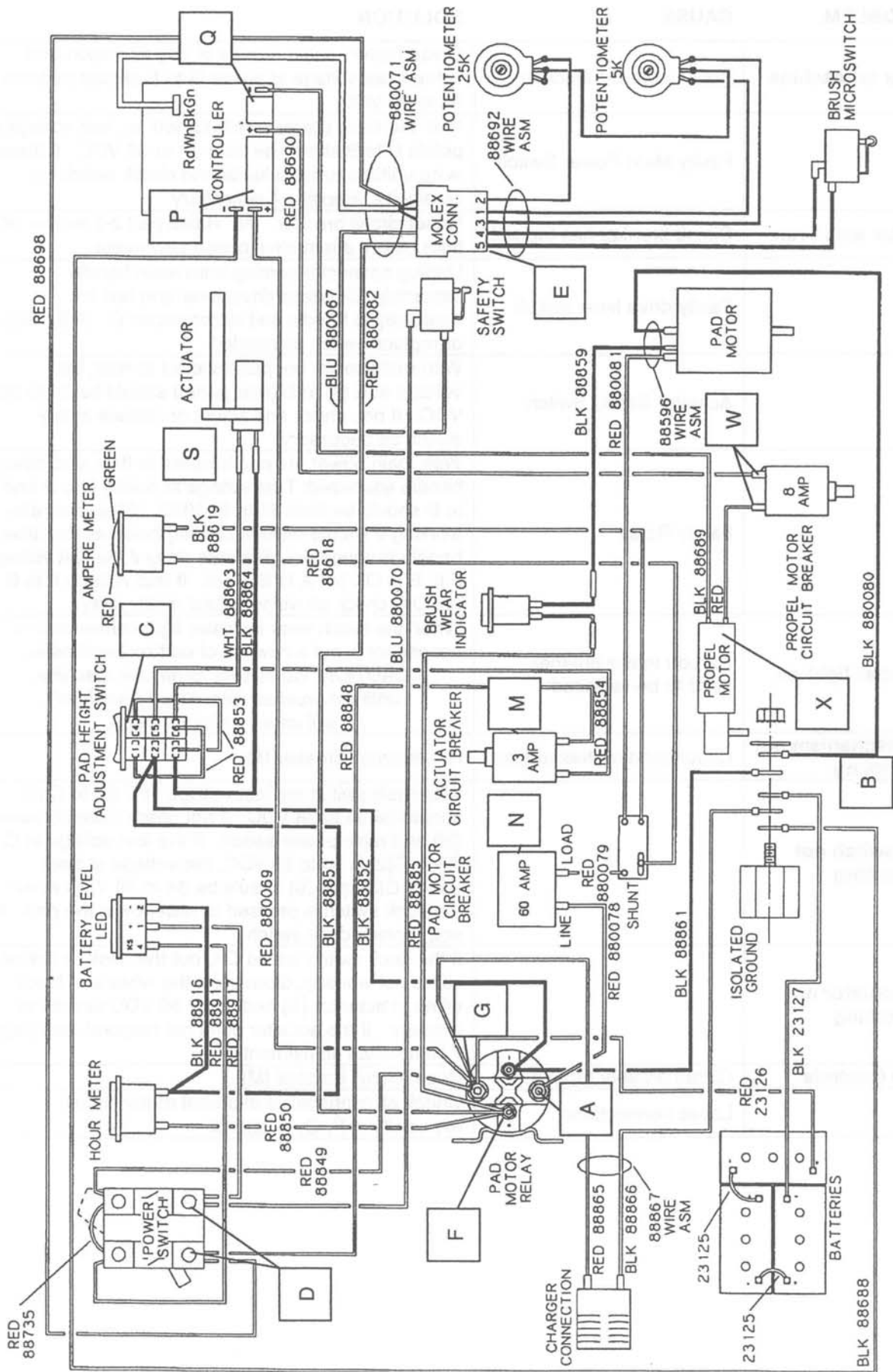


CAUTION: Do not use pressure washers to clean sealed gear boxes or bearings.

If it becomes necessary to clean under machine with a pressure washer; Ensure all items noted are re-lubricated

NOTES:

ELECTRICAL SCHEMATIC



TROUBLESHOOTING CHART

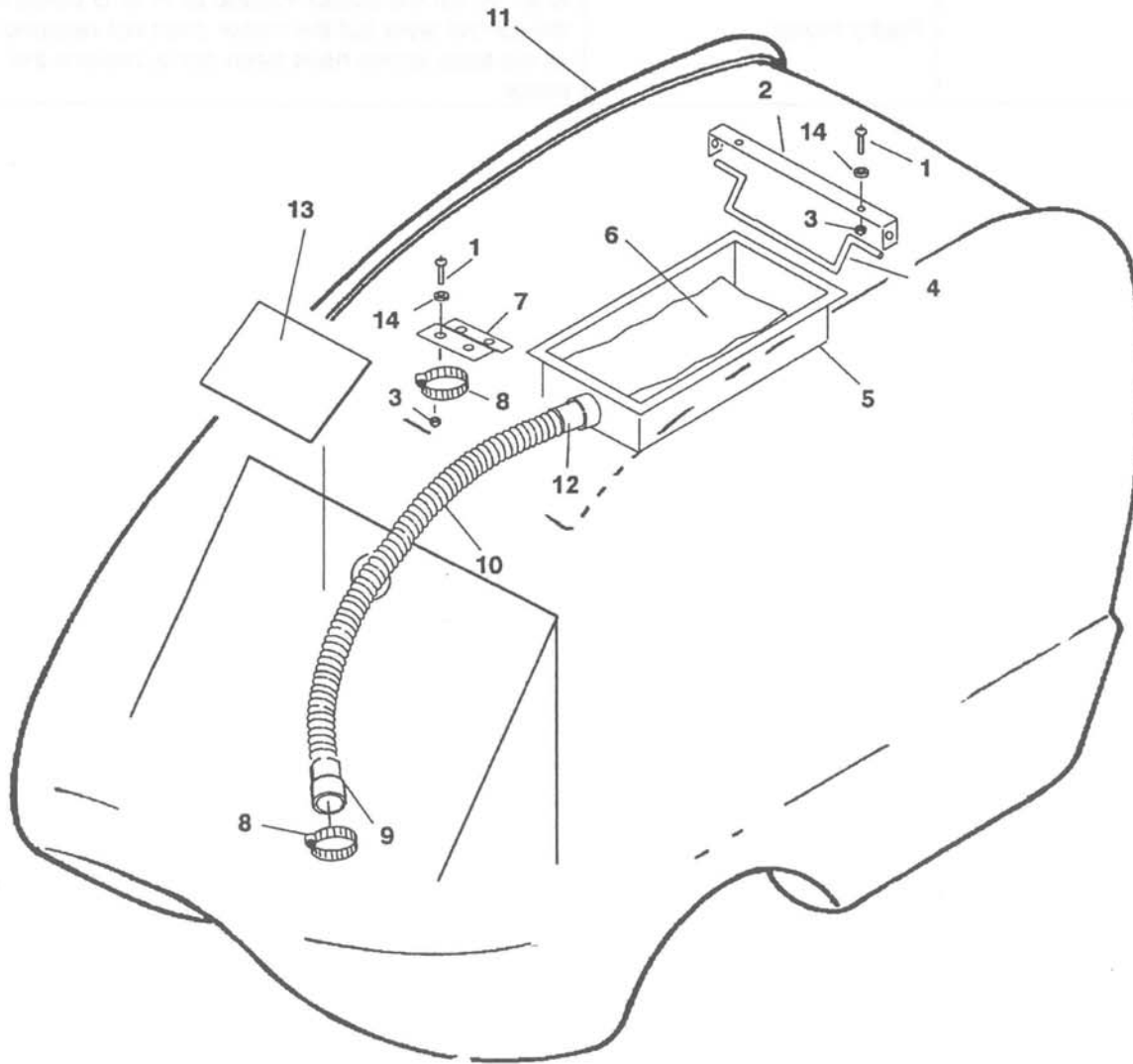
| PROBLEM. | CAUSE | SOLUTION |
|---------------------------------|--|---|
| No power to machine | Poor Cable Connection | Clean battery cable clamps of any corrosion and tighten test voltage at points G to B should be from 34 to 38 VDC. |
| | Faulty Main Power Switch | With the main power switch turned on, test voltage at points D to B should be from 34 to 38 VDC. If there is no voltage remove leads and check switch for continuity. Replace if necessary |
| Pad motor won't run | Circuit breaker has tripped | Reset circuit breaker. (N) Raise pad 2-3 inches off floor before attempting to start pad motor. |
| | Faulty drive lever switch | Unplug connector coming from main handle assembly. Squeeze drive lever and test for continuity at handle end of connector E. (4-5) Adjust or replace switch as needed. |
| | Actuator Safety Switch | With main power on, pad lowered to floor, test voltage at E (4) to B (rear panel) should be 34 to 38 VDC. If not, check and adjust or replace safety switch as necessary. |
| Brush wear light on | Carbon motor brushes need to be replaced | With main power on, pad lowered to floor and drive handle squeezed: Test voltage at points F to B and A to B should be from 34 to 38 VDC. When the relay is working it should make a clicking noise as the drive handle is squeezed. Replace relay if the test voltage F to B is OK but A to B is not. If test voltage F to B is not OK, check all wiring to pad motor relay. |
| | | When the brush wear indicator light comes on it is necessary to put a new set of carbon brushes in. <i>CAUTION: Continuing to run the machine, until the brushes wear away completely, will cause motor damage.</i> |
| Deck lift mechanism not working | Circuit breaker has tripped | Reset circuit breaker (M). |
| Deck switch not working | | With main switch on, test voltage at C (5) to C (2) should be 34 to 38 VDC. If not check circuit breaker (M) and main power switch. If the test voltage at C (5) to C(2) is 34 to 38 VDC, the voltage at deck switch C(3) to C (6) should be 34 to 38 VDC when the deck switch is pressed to raise/lower the pad. If not, replace deck switch. |
| Deck actuator not working | | If the deck switch tested OK, but the deck lift actuator still is not working, disconnect the white and black wires to actuator (S) and apply 36 VDC directly to actuator. If the actuator does not respond, see page 7 limit switch adjustments. |
| Drive Controls | Circuit breaker tripped. | Reset circuit breaker (M). |
| | Loose connections | Check all connections in propel motor circuit especially at P, Q, W and G. |

TROUBLESHOOTING CHART

| PROBLEM. | CAUSE | SOLUTION |
|---------------------------------------|----------------------------|---|
| Drive Controls (continued) | Faulty Potentiometer | With the drive motor disconnected at Q, test the output voltage to the drive motor. The output voltage at Q should vary from 0 to 36V FWD 0-24 REV. as the control levers are squeezed. Resistance of the potentiometers can be tested at the white and black leads found at the molex connector at E. With the speed knob turned to maximum, the resistance should vary from 2500-5000 ohms as the lever is squeezed (forward drive). The resistance should vary from 2500-0 ohms as the lever is pushed to the front (reverse drive). The resistance should be 2500 ± 300 ohms with the lever centered in neutral. If this fails, the potentiometers will both need to be replaced. |
| | Faulty drive control board | Test voltage at P (+) to P (-) should be from 34 to 38 VDC. If the voltage at P is good but the propel motor won't respond, and all the tests above have been done, replace the drive control board. |
| | Faulty motor | Squeeze the control levers and test the voltage at W to B. When the output voltage at W or B varies with the control lever but the motor does not respond, and all the tests above have been done, replace the motor. |

HOOD PARTS & PARTS LIST

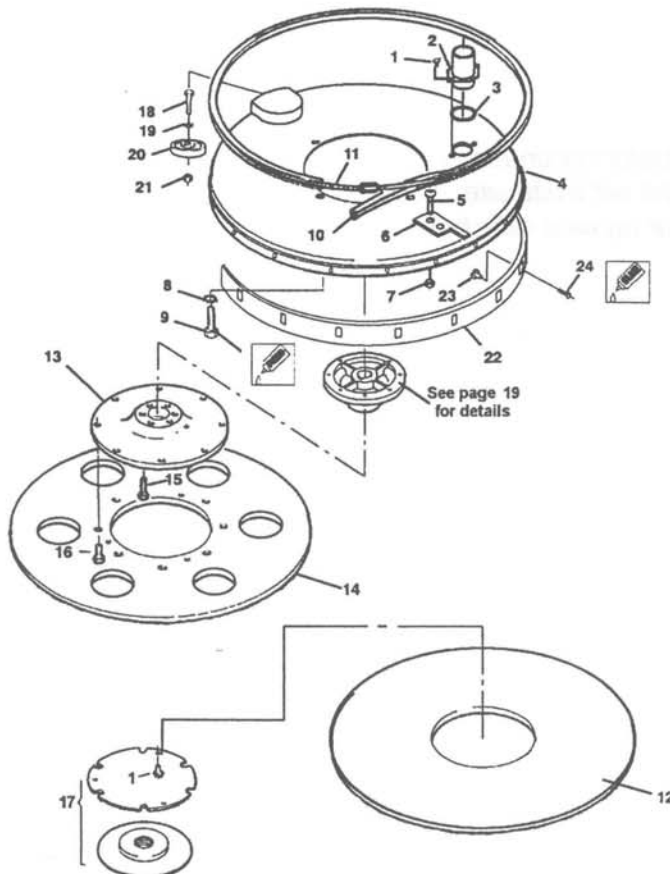
| REF | PART NO. | DESCRIPTION | SERIAL NO. FROM | NOTES: |
|-----|----------|---------------------------------|-----------------|--------|
| 1 | 70088 | Screw, 10-32 x 1/2 PPHMS | | |
| 2 | 14883 | Bracket, Housing Holder | | |
| 3 | 57104 | Nut, 10-32 w/ Star Washer | | |
| 4 | 14884 | Bracket, Folding Housing Holder | | |
| 5 | 41235 | Housing, Filter Bag | | |
| 6 | 2003 | Filter Bag Packs 10/package | | |
| 7 | 14882 | Bracket, Bag Housing Holder | | |
| 8 | 20046 | Clamp, 2.25" Worm Gear | | |
| 9 | 27814 | Cuff, Blk 1.9ID Vac Hose x 4.07 | | |
| 10 | 39492 | Hose, 1.5 Blk Vac x 30" | | |
| 11 | 27847 | Cover, Betco Main | | |
| 12 | 27759 | Cuff, Hose 1.5" Blk A 2161 | | |
| 13 | 500057 | Label, Betco Logo | | |
| 14 | 87108 | Washer, #10 X 9/16 O.D. | | |



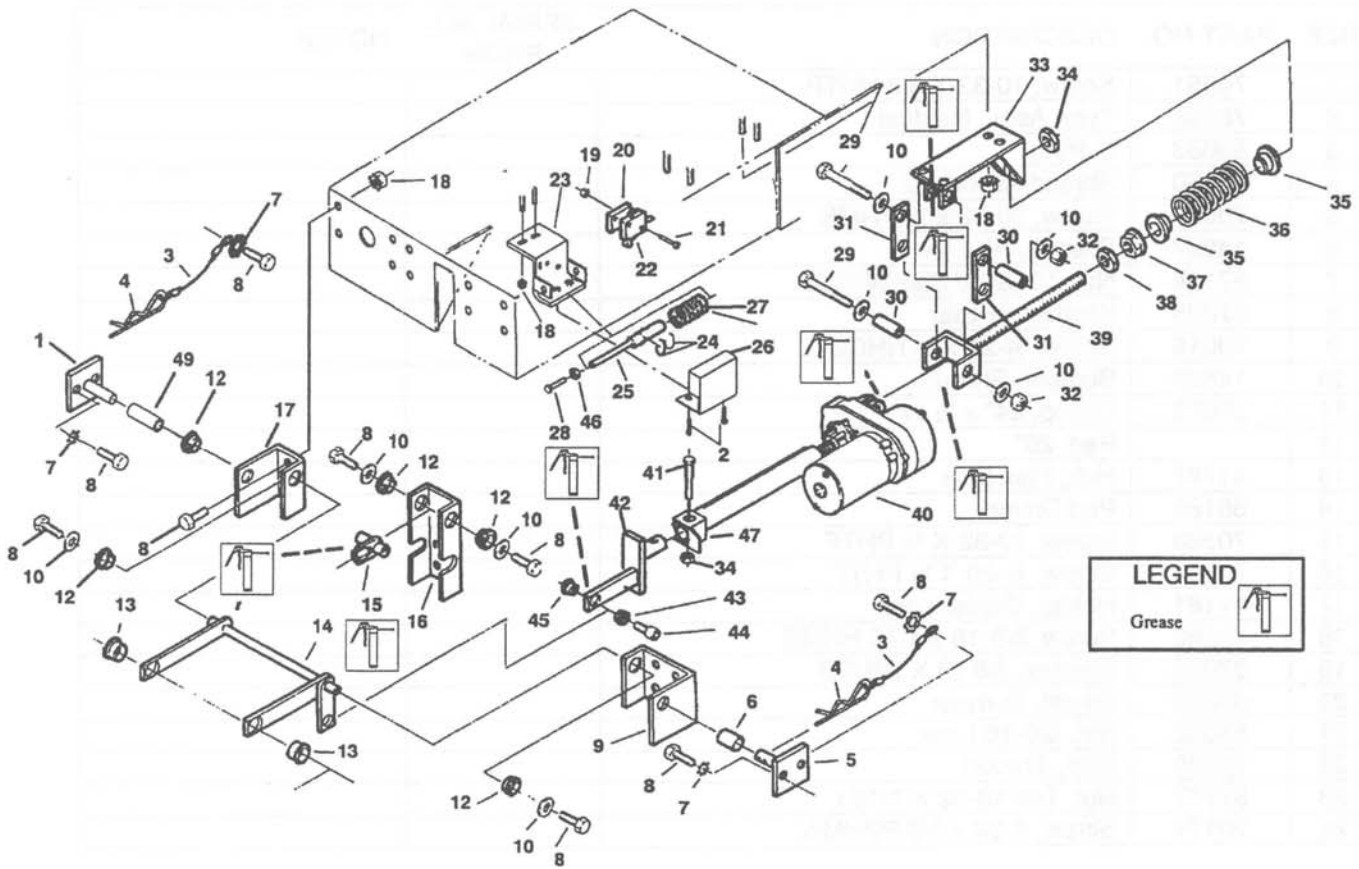
SHROUD ASSEMBLY & PARTS LIST

| REF | PART NO. | DESCRIPTION | SERIAL NO. FROM | NOTES: |
|-----|----------|---------------------------|-----------------|--------|
| 1 | 70351 | Screw, 10-32 X 3/8 HHTR | | |
| 2 | 78330 | Tube Asm., No dust | | |
| 3 | 59033 | O-Ring | | |
| 4 | 73550 | Shroud Assembly | | |
| 5 | 70088 | Screw, 10-32 x 1/2 PHMS | | |
| 6 | 14927 | Bracket, Air Flow | | |
| 7 | 57104 | Nut, 10-32 w/ Star Washer | | |
| 8 | 87025 | Washer, 1/4 Star | | |
| 9 | 70015 | Screw, 1/4-20 x 3/4 HHCS | | |
| 10 | 14560 | Bumper, Shroud | | |
| 11 | 20076 | Clamp, 24" x 1/2 W | | |
| 12 | | Pad, 20" | | |
| 13 | 41187 | Hub, Flex Disk | | |
| 14 | 66185 | Pad Driver | | |
| 15 | 70383 | Screw, 10-32 X 3/4 PHTF | | |
| 16 | 70384 | Screw, 1/4-20 X 1/2 PHTF | | |
| 17 | 41161 | Holder, Center Lock | | |
| 18 | 70368 | Screw, 3/8-16 x 1.75 HHMS | | |
| 19 | 87003 | Washer, 3/8 ID X 7/8 OD | | |
| 20 | 89059 | Wheel, Bumper | | |
| 21 | 57022 | Nut, 3/8-16 Lock | | |
| 22 | 73620 | Skirt, Shroud | | |
| 23 | 57177 | Nut, Tee #8-32 X 7/16 L | | |
| 24 | 70174 | Screw, 8-32 x 3/8 PPHMS | | |

SHROUD ASSEMBLY



LIFT LINKAGE

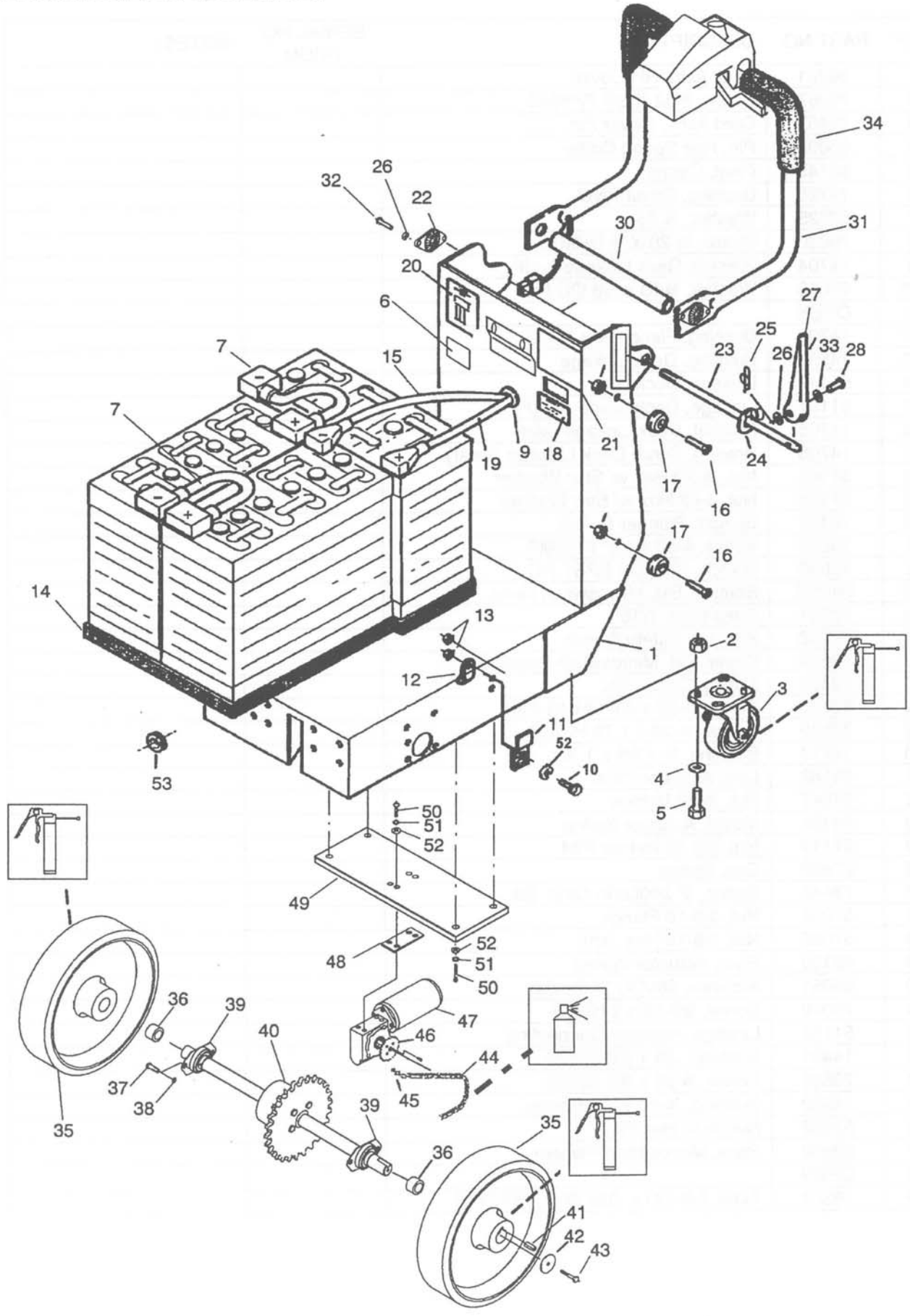


NOTE: If the actuator continues running beyond the set limits use page 7 to adjust or replace switches.

LIFT LINKAGE PARTS LIST

| REF | PART NO. | DESCRIPTION | SERIAL NO. FROM | NOTES: |
|-----|----------|------------------------------------|--------------------|--------|
| 1 | 66201 | Pivot Asm, RH Cover | | |
| 2 | 70067 | Screw, 6-32 X 3/8 PPHMS | | |
| 3 | 27457 | Cord Asm., Cover Pin | | |
| 4 | 66092 | Pin, Hair Spring Cotter | | |
| 5 | 66149 | Pivot, Center | | |
| 6 | 14725 | Bushing, Cover Pivot | | |
| 7 | 87025 | Washer, 1/4 Star | | |
| 8 | 70020 | Screw, 1/4-20 X 1/2 HHMS | | |
| 9 | 14704 | Bracket, Deck Linkage (Left) | | |
| 10 | 87013 | Washer, 1/4 ID x 5/8 OD Flat | | |
| 11 | OPEN | | | |
| 12 | 14708 | Bushing, Flange 1/2 x 3/4 OD | | |
| 13 | 14593 | Bushing, Deck Linkage | | |
| 14 | 51147 | Linkage, Deck Lift | | |
| 15 | 51151 | Linkage, Deck Guide Adj (F) | | |
| 16 | 14705 | Bracket, Deck Linkage (Mid) | | |
| 17 | 14706 | Bracket, Scrub Deck Linkage (Rear) | | |
| 18 | 57105 | Nut, 1/4-20 Hex w/ Star Washer | | |
| 19 | 57163 | Nut, 4-40 Hex w/ Star Washer | | |
| 20 | 73456 | Spacer, Plunger Switch | | |
| 21 | 70580 | Screw, 4-40 x 1.0" PPHMS | | |
| 22 | 72053 | Switch, 125VDC SPST NC | | |
| 23 | 140135 | Bracket, Ext. Microswitch Mntg. | | |
| 24 | 27721 | Snap Ring, 7/16" | | |
| 25 | 66266 | Plunger, Safety Switch | | |
| 26 | 23670 | Cover, Ext. Microswitch Bracket | | |
| 27 | 73576 | Spring, Comp. Blk. | | |
| 28 | 70424 | Screw, 8-32 x 5/8 HHMS Pltd | | |
| 29 | 70105 | Screw, 1/4-20 x 1.75 HHMS | | |
| 30 | 14714 | Bushing, 1/4 x 3/8 x 1 1/4 L | | |
| 31 | 51152 | Link, Actuator Pivot | | |
| 32 | 57047 | Nut, 1/4-20 Nylock | | |
| 33 | 54134 | Mount, Actuator Spring | | |
| 34 | 57119 | Nut, 3/8-16 Nylock Pltd | | |
| 35 | 27430 | Cap, Spring | | |
| 36 | 73443 | Spring, 3" 240Lb/In Cmp. Blk. | | |
| 37 | 57032 | Nut, 3/8-16 Flange | | |
| 38 | 57085 | Nut, 3/8-16 Hex Jam | | |
| 39 | 66150 | Pivot, Actuator Spring | | |
| 40 | 05051 | Actuator, 36VDC 3" Stroke | | |
| 41 | 70070 | Screw, 3/8-16 x 2 HHCS | | |
| 42 | 51153 | Linkage, Actuator Connecting | | |
| 43 | 14491 | Bushing, .25 x 3/8 SHCS | | |
| 44 | 70346 | Screw, 1/4-20 x 3/8 SHCS | | |
| 45 | 14580 | Bushing, 1/4-20 x .28 Flange | | |
| 46 | 57008 | Nut, 8-32 Hex Pltd | | |
| 47 | 62460 | Plate, Microswitch Plunger | | |
| 48 | OPEN | | | |
| 49 | 78323 | Tube, 5/8 OD x .058 W x .930 CRS | | |

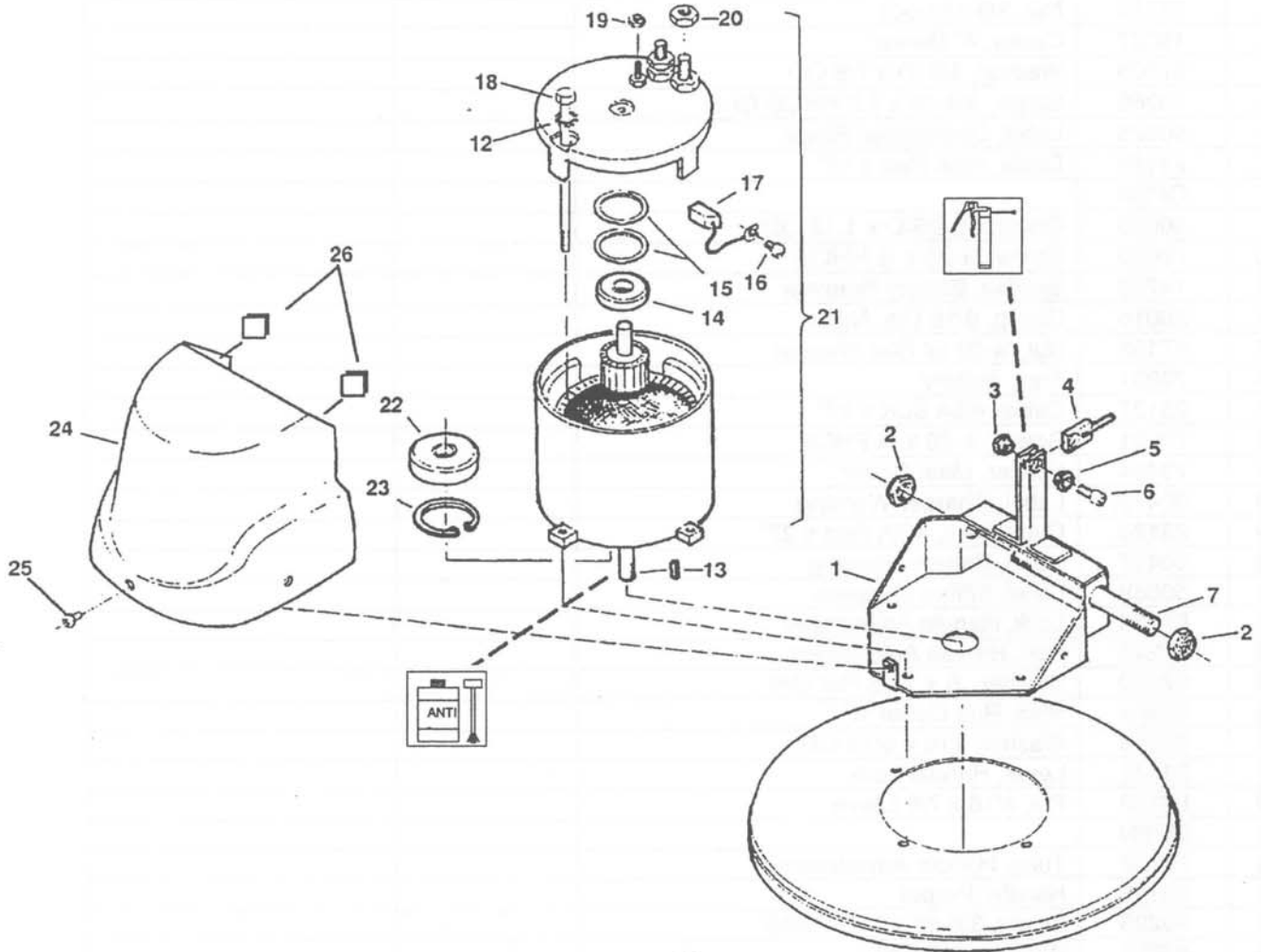
CHASSIS/DRIVE ASSEMBLY



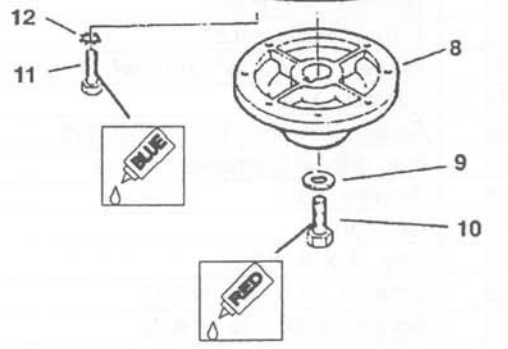
CHASSIS/DRIVE ASSEMBLY PARTS LIST

| REF | PART NO. | DESCRIPTION | SERIAL NO. FROM | NOTES: |
|-----|----------|------------------------------------|--------------------|--------|
| 1 | 34235 | Frame Asm. | | |
| 2 | 57119 | Nut, 3/8-16 Lock | | |
| 3 | 18027 | Caster, 4" Swivel | | |
| 4 | 87003 | Washer, 3/8 ID x 7/8 OD | | |
| 5 | 70266 | Screw, 3/8-16 x 1.0 HHCS Gr 5 | | |
| 6 | 50926 | Label, Operational Slope | | |
| 7 | 23125 | Cable, 4GA Red x 12" | | |
| 8 | OPEN | | | |
| 9 | 36020 | Grommet, 5/8ID x 1.12 OD | | |
| 10 | 70020 | Screw, 1/4-20 x 1/2 HHCS | | |
| 11 | 14730 | Bracket, Battery Retainer | | |
| 12 | 20015 | Clamp, 9/16 Dia. Nylon | | |
| 13 | 57105 | Nut, 1/4-20 w/ Star Washer | | |
| 14 | 78231 | Tray, Battery | | |
| 15 | 23127 | Cable, 4GA BLK x 27" | | |
| 16 | 70201 | Screw, 1/4-20 x 3/4 FHCS | | |
| 17 | 73454 | Spacer, Main Cover | | |
| 18 | 50413 | Label, Charger Warning | | |
| 19 | 23126 | Cable Asm, 4GA Red x 27" | | |
| 20 | 50497 | Label, Battery Warning | | |
| 21 | 50669 | Label, Wiring Diagram | | |
| 22 | 51184 | Lock, Handle Adjustment | | |
| 23 | 67233 | Rod, Handle Adjustment | | |
| 24 | 87080 | Washer, .5 x 1.25 Flat Gr8 | | |
| 25 | 80604 | Ring, Rue Cotter 1/4" | | |
| 26 | 87018 | Washer, #10 x 9/16 OD | | |
| 27 | 51142 | Lever, Handle Lock | | |
| 28 | 66133 | Pin, 3/16 x 7/8 Clevis | | |
| 29 | OPEN | | | |
| 30 | 78269 | Tube, Handle Adjustment | | |
| 31 | 38195 | Handle, Propel | | |
| 32 | 70228 | Screw, 3/8-16 x 1.5 HHMS | | |
| 33 | 87095 | Washer, #10 Flat | | |
| 34 | 36123 | Grip, Handle x 9.5" | | |
| 35 | 89078 | Wheel, 10" x 2 1/2" GRY w/ 1" bore | | |
| 36 | 73614 | Spacer, Axle | | |
| 37 | 70266 | Screw, 3/8-16 x 1.0 HHCS Gr5 | | |
| 38 | 57032 | Nut, 3/8-16 Serrated Flange | | |
| 39 | 09066 | Bearing Asm. | | |
| 40 | 29170 | Differential | | |
| 41 | 48052 | Key, 1/4 x 1/4 x 2 1/2 | | |
| 42 | 87008 | Washer, 1/4 ID x 1 1/4 OD | | |
| 43 | 70020 | Screw, 1/4-20 x 1/2 HHCS | | |
| 44 | 27553 | Chain, #40, 1/2" Pitch x 40 | | |
| 45 | 27343 | Chain, Master link, #40, 1/2 | | |
| 46 | 73565 | Sprocket, #40B11 F 1/2 | | |
| 47 | 53208 | Motor, 36VDC Gear | | |
| 48 | 62389 | Plate, Motor Spacer | | |
| 49 | 62388 | Plate, Propel Motor | | |
| 50 | 70015 | Screw, 1/4-20 x 3/4 HHCS | | |
| 51 | 87025 | Washer, 1/4 Lock Ext Star SS | | |
| 52 | 87013 | Washer, 1/4 ID x 7/8 OD SS | | |
| 53 | 36125 | Grommet, 3/4 ID x 1.38 OD | | |

DECK LIFT MECHANISM



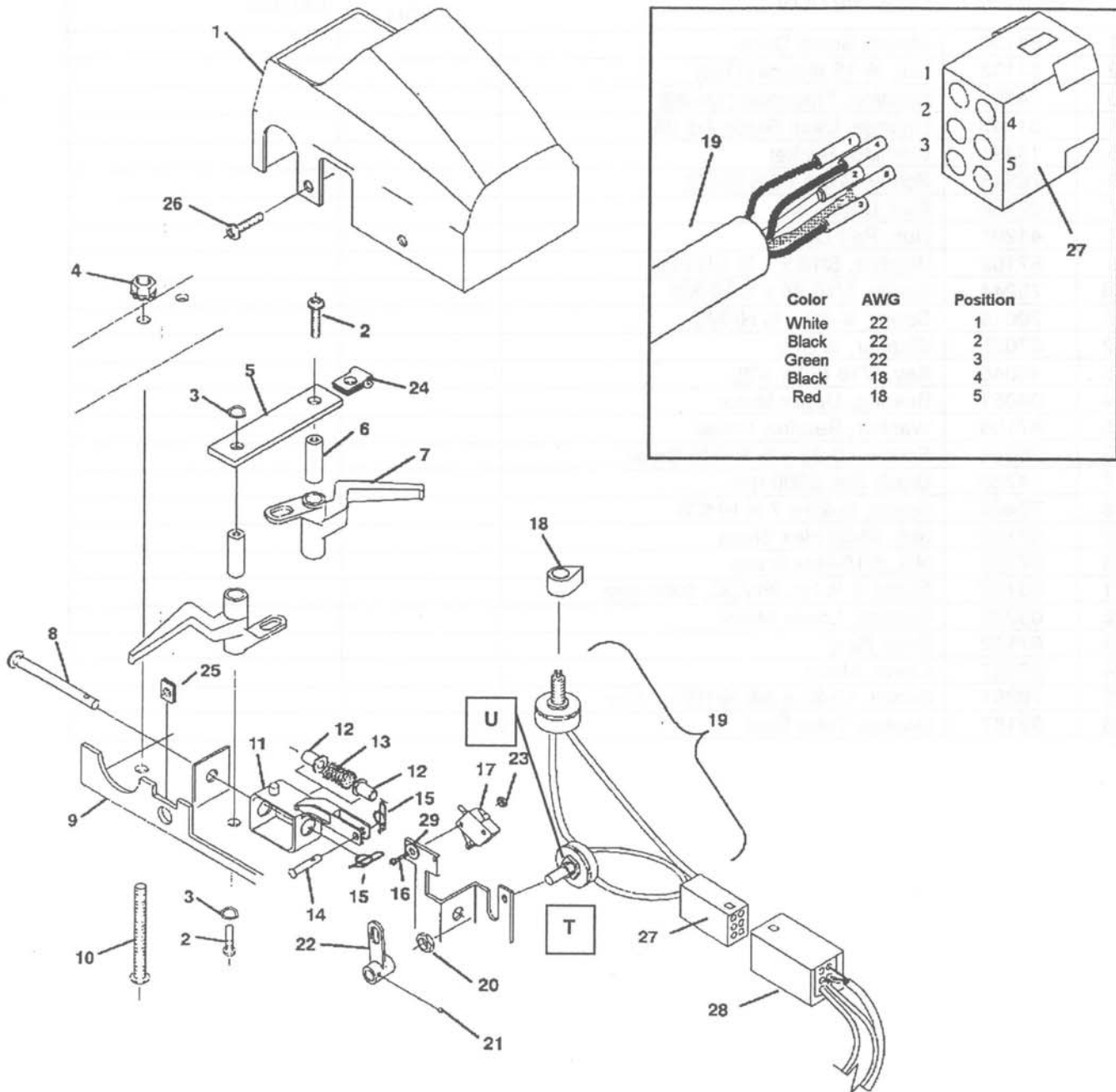
| | |
|---|------------------------------|
|  | ANTI-SEIZE |
|  | RED THREAD LOCKING ADHESIVE |
|  | BLUE THREAD LOCKING ADHESIVE |
|  | GREASE |
| **LEGEND** | |



DECK LIFT MECHANISM PARTS LIST

| REF | PART NO. | DESCRIPTION | SERIAL NO. FROM | NOTES: |
|-----|----------|---------------------------------|--------------------|--------|
| 1 | 54130 | Mount, Scrub Deck | | |
| 2 | 57153 | Nut, ½-13 Nylock (Thin) | | |
| 3 | 14580 | Bushing, Threaded (1/4-20) | | |
| 4 | 51149 | Linkage, Deck Guide Adj (M) | | |
| 5 | 14491 | Bushing, Socket | | |
| 6 | 70346 | Screw, ¼-20 x 3/8 SHCS | | |
| 7 | 67238 | Rod, Deck Lift | | |
| 8 | 41201 | Hub, Pad Driver | | |
| 9 | 87102 | Washer, 5/16 x 1 ¼ OD Flat | | |
| 10 | 70244 | Screw, 5/16-24 x ½ HHMS | | |
| 11 | 70015 | Screw, ¼-20 x ¾ HHMS | | |
| 12 | 87025 | Washer, ¼ Star | | |
| 13 | 48045 | Key, 3/16 SQ x 1/2L | | |
| 14 | 09051 | Bearing, Upper Motor | | |
| 15 | 87106 | Washer, Bearing Thrust | | |
| 16 | 70344 | Screw, 10-32 x ½ PHMS Brass | | |
| 17 | 14728 | Brush Set, 2000 rpm | | |
| 18 | 70408 | Screw, ¼-20 x 7 ½ HHCS | | |
| 19 | 57168 | Nut, 10-32 Hex Brass | | |
| 20 | 57125 | Nut, 5/16-Hex Brass | | |
| 21 | 53190 | Motor, 2 ½ hp, 36VDC, 2000 rpm | | |
| 22 | 09052 | Bearing, Lower Motor | | |
| 23 | 67142 | Snap Ring | | |
| 24 | 27427 | Cover, Motor | | |
| 25 | 70351 | Screw, 10-32 x 3/8 HHTF w/ Star | | |
| 26 | 35187 | Gasket, Tube Seal | | |

DRIVE CONTROL ASSEMBLY



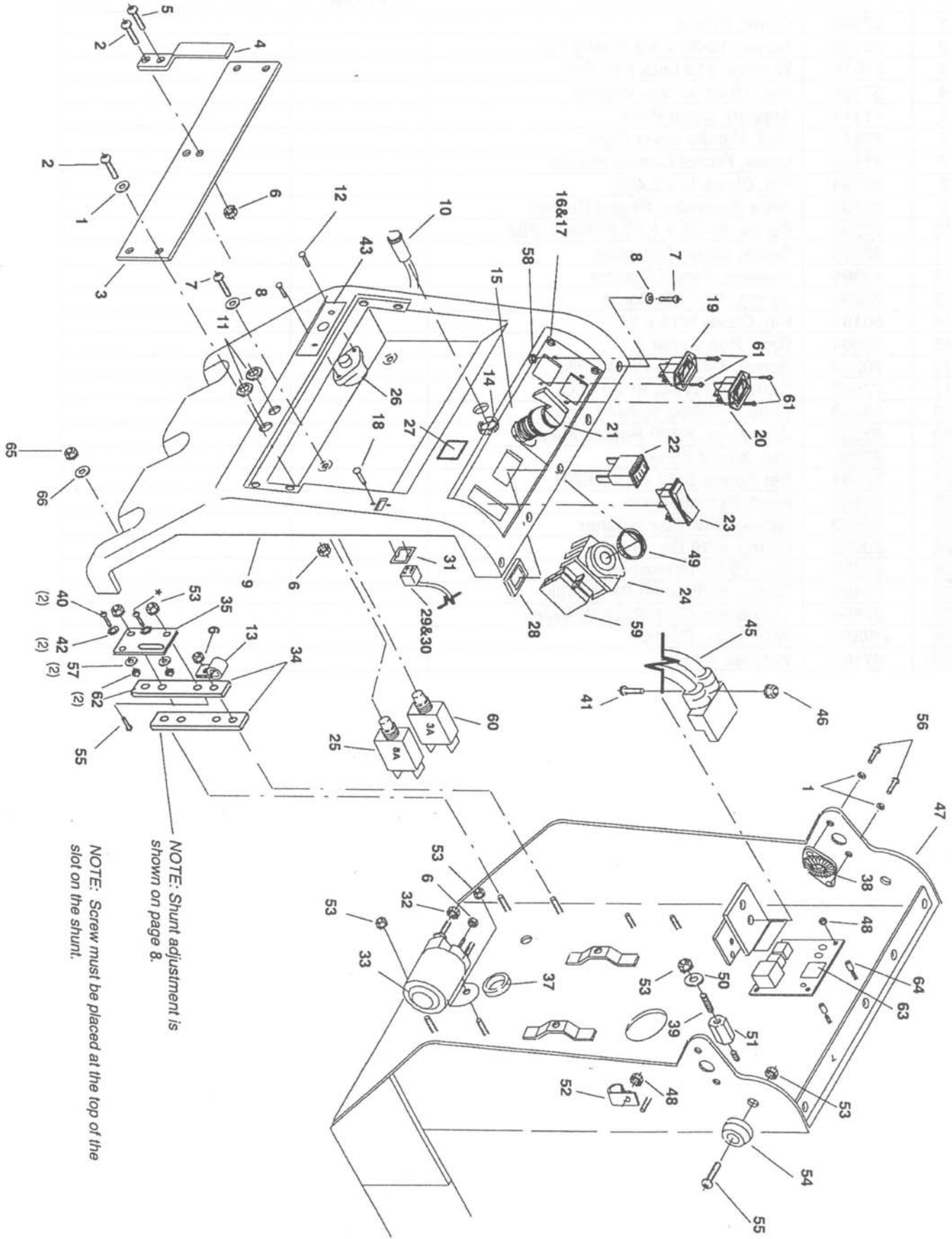
Adjustment of potentiometer for drive control

1. Turn the speed potentiometer (U) fully clockwise. (Max.speed).
2. Measure the potentiometer resistance at connector (#27) white and black wires. The resistance should measure 2200-2800 ohms in neutral, 4800-5000 ohms in forward, and 0-200 ohms in reverse. If adjustment is necessary loosen set screw (#21) and adjust potentiometer (T) for 2500 ohms in Neutral. Tighten set screw (#21).
3. Turn the main power switch on.
4. If the machine moves, when control lever is in neutral, adjust the direction potentiometer until movement stops.

DRIVE CONTROL ASSEMBLY

| REF | PART NO. | DESCRIPTION | SERIAL NO. FROM | NOTES: |
|-----|----------|--------------------------------|--------------------|--------|
| 1 | 27568 | Cover, Propel | | |
| 2 | 70162 | Screw, 10-32 x 3/8 PHMS SS | | |
| 3 | 87016 | Washer, #10 Lock Ext. Star | | |
| 4 | 57104 | Nut, 10-32 w/ Star Washer | | |
| 5 | 71116 | Support, Lever Pivot | | |
| 6 | 67271 | Rod, Handle Lever Pivot | | |
| 7 | 51186 | Lever, Propel Control Handle | | |
| 8 | 66184 | Pin, Clevis 1/4 x 2.438 | | |
| 9 | 62705 | Plate Assembly, Propel Control | | |
| 10 | 70209 | Screw, 10-32 x 1.75 PPHMS Pltd | | |
| 11 | 36136 | Guide, Lever Centering | | |
| 12 | 14866 | Bushing, Propel Control | | |
| 13 | 73236 | Spring, 1 1/2" LG Comp. | | |
| 14 | 66191 | Pin, Clevis 3/16 x 1/2 | | |
| 15 | 80604 | Ring, Rue Cotter 1/4" | | |
| 16 | 70245 | Screw, 4-40 x 1/4 PHMS Pltd. | | |
| 17 | 72093 | Switch, 125VDC SPST N.O. | | |
| 18 | 48043 | Knob, PT26/32 Speed Control | | |
| 19 | 88692 | Wire Asm., F22P Potentiometer | | |
| 20 | 57024 | Nut, 3/8-27 Panel | | |
| 21 | 70084 | Set Screw, 8-32 x 3/16 KCP | | |
| 22 | 66183 | Pivot, Potentiometer | | |
| 23 | 57163 | Nut, 4-40 w/ Star Washer | | |
| 24 | 20005 | Clamp, 5/16 Dia. Nylon | | |
| 25 | 57028 | Nut, 10-24 Tinnerman | | |
| 26 | 70406 | Screw, #10B x 3/8 PHSM Blk | | |
| 27 | 27554 | Connector, 6 Pin Recept. Molex | | |
| 28 | 880071 | Wire Asm., Control | | |
| 29 | 87161 | Washer, #6 Flat | | |

ELECTRICAL CONTROLS



NOTE: This controller needs to be separated from the frame.

ELECTRICAL CONTROLS PARTS LIST

| REF | PART NO. | DESCRIPTION | SERIAL NO. FROM | NOTES: |
|-----|----------|-----------------------------------|--------------------|--------|
| 1 | 87018 | Washer, #10 x 9/16 OD | | |
| 2 | 70066 | Screw, 10-32 x 3/4 PHMS | | |
| 3 | 27434 | Cover, Storage | | |
| 4 | 41144 | Hook, Cord | | |
| 5 | 70088 | Screw, 10-32 x 1/2 PHMS | | |
| 6 | 57104 | Nut, 10-32 w/ Star Washer | | |
| 7 | 70406 | Screw, 10B x 3/8 PHSM (Blk) | | |
| 8 | 87117 | Washer, #10 Flat (Blk) | | |
| 9 | 27719 | Cover, Rear | | |
| 10 | 51292 | Light Asm., L2020B Brush Ind | | |
| 11 | 57024 | Nut, 3/8-27 Panel | | |
| 12 | 70067 | Screw, 6-32 x 3/8 | | |
| 13 | 20005 | Clamp, 5/16 Nylon | | |
| 14 | 87101 | Washer, 1/2 ID Spring | | |
| 15 | 62334 | Plate, Switch Panel | | |
| 16 | 70394 | Screw, 6-32 x 1/2 THMS (Blk) | | |
| 17 | 57157 | Nut, 6-32 U-Tinnerman | | |
| 18 | 67240 | Rivet, 1/8 x 1/2 Aluminum Blk | | |
| 19 | 54092 | Meter, DC 0-60 VDC Hour | | |
| 20 | 54144 | Light, Battery Charge Lvl. LED | | |
| 21 | 72051 | Switch, Main Rotary | | |
| 22 | 54131 | Meter, 70 Amp DC | | |
| 23 | 72084 | Switch, 3 Position DPDT MOM | | |
| 24 | 72088 | Switch, Contact Block Chip | | |
| 25 | 14668 | Breaker, 8 Amp Circuit | | |
| 26 | 140182 | Breaker, 60 Amp Circuit | | |
| 27 | 50776 | Label, Warning for Safety | | |
| 28 | 62283 | Plate, Meter Retaining | | |
| 29 | 27555 | Connector, 6 Pin F-Molex | | |
| 30 | 76014 | Terminal, Male Pin Molex | | |
| 31 | 62390 | Plate, Molex Mounting | | |
| 32 | 57117 | Nut, 5/16-24 Hex | | |
| 33 | 67315 | Relay, 36VDC 100A heavy duty | | |
| 34 | 14729 | Bracket, Shunt Mounting | | |
| 35 | 73445 | Shunt, 50MV 70 Amp | | |
| 36 | Open | | | |
| 37 | 36125 | Grommet, 3/4 ID x 1.38 OD | | |
| 38 | 51184 | Lock, Handle Adjustment | | |
| 39 | 70251 | Set Screw, 1/4-20 x 1/0 HHCS | | |
| 40 | 70615 | Screw, 6-32 x 3/8 SRHMS BR | | |
| 41 | 70239 | Screw, 6-32 x 3/4 PHMS | | |
| 42 | 87026 | Washer, #6 Ext. Tooth Zinc Pltd. | | |
| 43 | 73829 | Spacer, Circuit Breaker | | |
| 44 | OPEN | | | |
| 45 | 88867 | Wire, 14" Blk 18 76035x 76075L | | |
| 46 | 57012 | Nut, 6-32 | | |
| 47 | 34235 | Frame Asm. | | |
| 48 | 57116 | Nut, 6-32 w/ Star Washer Pltd. | | |
| 49 | 57107 | Nut, M22,5 | | |
| 50 | 87092 | Washer, 5/16 x 3/4 Brass | | |
| 51 | 73659 | Standoff, Insul. 1.L Hex 1/4 x 20 | | |
| 52 | 20015 | Clamp, 9/16 Dia. Nylon | | |
| 53 | 57105 | Nut, 1/4-20 w/ Star Washer | | |
| 54 | 73454 | Spacer, Main Cover | | |
| 55 | 70201 | Screw, 1/4-20 x 3/4 FHMS | | |

ELECTRICAL CONTROLS PARTS LIST (continued)

| | | | | |
|----|-------|---------------------------------|--|--|
| 56 | 70228 | Screw, 10-32 x ¼ PHMS SS | | |
| 57 | 87187 | Washer, #6 Flat BR | | |
| 58 | 57049 | Nut, 6-32 Hex Nylock SS | | |
| 59 | 72089 | Switch, Contact Module | | |
| 60 | 14717 | Breaker, 3 Amp | | |
| 61 | 70394 | Screw, 6-32 x ½ THMS Blk | | |
| 62 | 57256 | Nut, 6-32 Hex BR | | |
| 63 | 27579 | Controller, 36VDC 1.8 Sec. Dly. | | |
| 64 | 73734 | Spacer, 3/8 OD x .218 ID x 1/4L | | |
| 65 | 57030 | Nut, 10-32 Hex Nylock | | |
| 66 | 87093 | Washer, #10 x 1.0 Flat | | |

SUGGESTED SPARE PARTS

| PART NO. | DESCRIPTION | SERIAL NO. FROM | NOTES: |
|----------|--------------------------------------|--------------------|--------|
| 14717 | Breaker, 3 Amp | | |
| 140182 | Breaker, Circuit 60 Amp | | |
| 18027 | Caster, 4" Polyurethane Swivel | | |
| 23125 | Cable Asm, Battery Jumper x 15 | | |
| 23126 | Cable Asm, 4Ga Red x 27" | | |
| 23127 | Cable Asm, 4Ga Blk x 27" | | |
| 41161 | Holder, Centerlock | | |
| 66185 | Pad Driver | | |
| 67315 | Relay, 36VDC 100A | | |
| 72051 | Switch, Main Rotary | | |
| 72053 | Switch, 125VDC SP NC Roller | | |
| 72088 | Switch, Contact Block Clip | | |
| 72089 | Switch, Contact Module No. | | |
| 72093 | Switch, 125VDC SPST N.O. | | |
| 73620 | Skirt, Shroud | | |
| 89059 | Wheel, Squeegee Bumper | | |
| 14668 | Breaker, 8 Amp | | |
| 02100 | Hydrometer | | |
| 02101 | Battery Post Cleaner | | |
| 02143 | Battery, 12VDC, 20Amp, 185 Amp Hour | | |
| 02104 | Charger, 36VDC, 20Amp, Auto Shut-Off | | (115V) |
| 23125 | Cable, 12" Red | | |
| 78231 | Battery Tray | | |