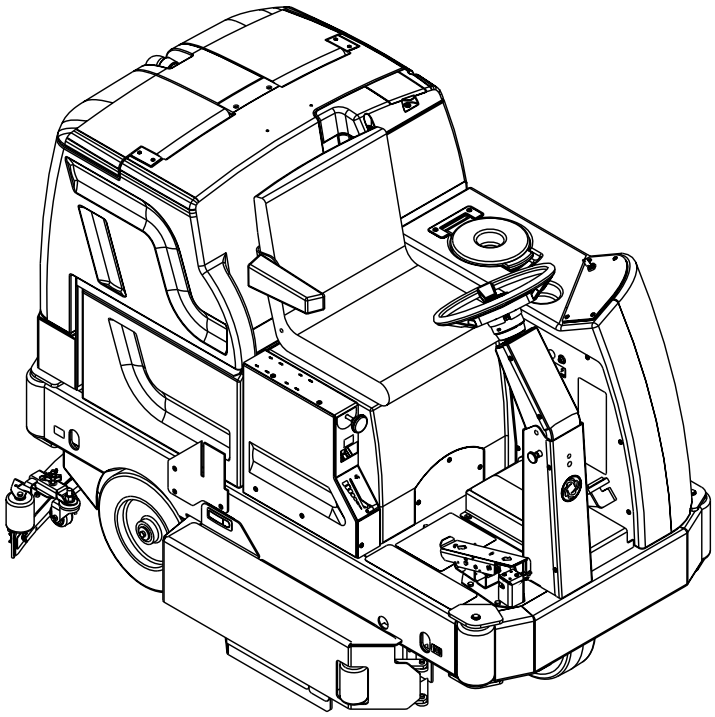
Hydro-Retriever™ 3800

Hydro-Retriever™ 2042

BR 1100, 1100C, 1100C-XL



SERVICE MANUAL

Advance MODELS 56410000 (disc), 56410350 (cyl.), 56410001 (2042), 56410500 (cyl. rollout), 56410501 (disc rollout), 56410502 (2042 rollout)
Nilfisk MODELS 56410002 (disc), 56410351 (cyl.), 56410425 (1100C-XL)

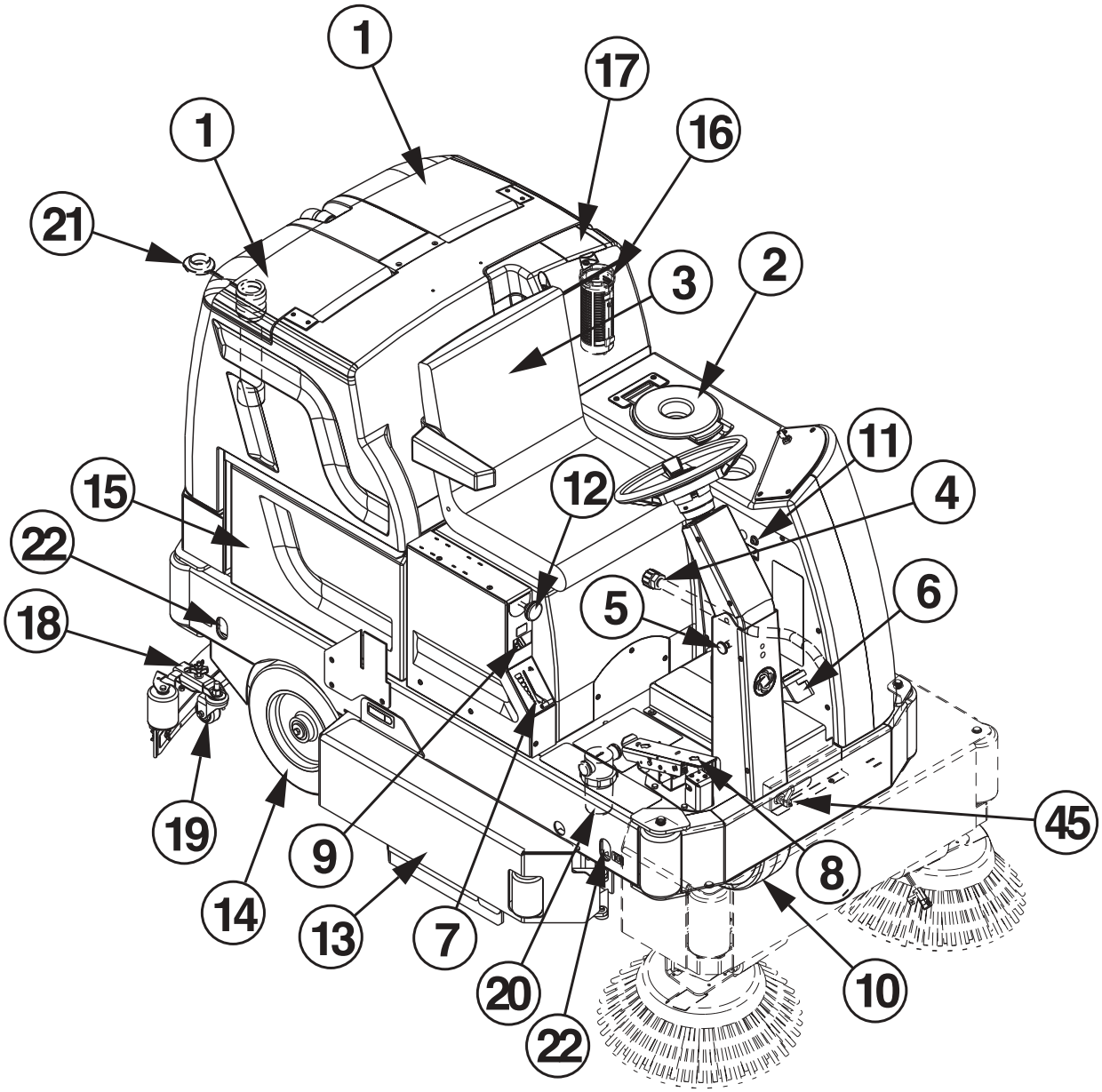
Nilfisk Advance

setting standards

1/01 revised 2/05 Form Number 56043058

KNOW YOUR MACHINE

1 Recovery Tank Covers
2 Solution Tank Fill Cover
3 Operator Seat w/Safety Switch
4 Solution Tank Drain Hose
5 Steering Wheel Adj. Tilt Knob
6 Brake Pedal & Parking Brake Set/Release Lever
7 Solution Flow Control Lever
8 Drive Pedal Directional/Speed
9 Charger Plug
10 Drive and Steer Wheel
11 Circuit Breakers
12 Emergency Stop Switch / Battery Disconnect
13 Scrub Brush Deck and Side Skirts
14 Rear Wheel
15 Battery Compartment
16 Recovery Tank Shutoff Float
17 Vacuum Motor Filter Housing
18 Squeegee Assembly
19 Squeegee Casters
20 Solution Filter
21 Recovery Tank Drain Hose
22 Tie Down Locations (4)
45 Side Broom Wear Adjustment Lever



SCRUB BRUSH SYSTEM TROUBLESHOOTING

On all models (disc & cylindrical) the scrub system's major electrical components are monitored by the main controller (A3) to detect any system function failures (error codes). The system components covered are the brush motor(s) (M2 & M11), brush solenoid (K3) and brush lift actuator motor (M1). Detected error codes from the main controller are displayed on the hour meter LED display as they occur. Note: Reference the Main Control Board Troubleshooting Guide in the Electrical System of this manual for specific fault descriptions and service repair actions.

FIGURE 1

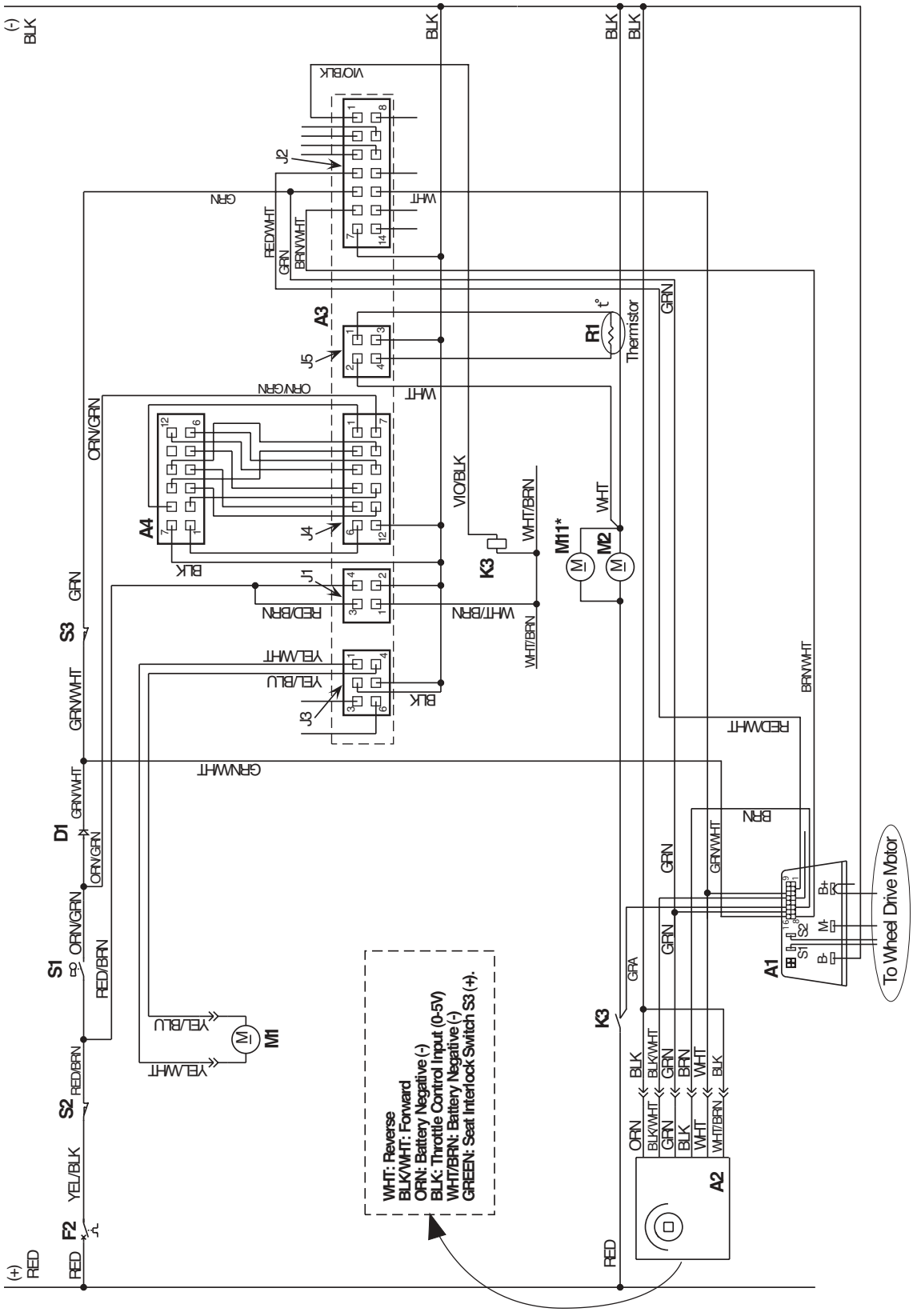
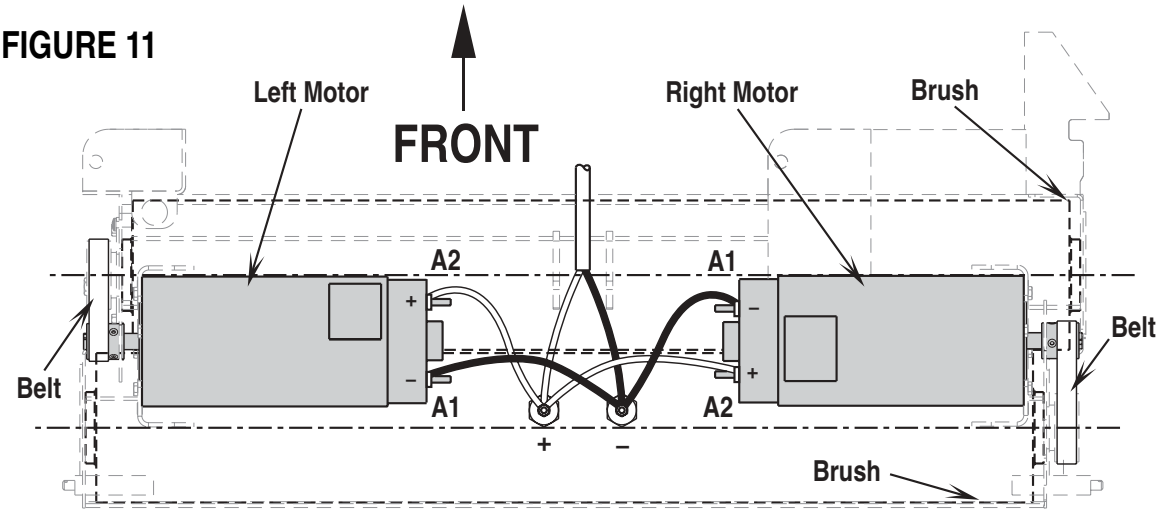


FIGURE 11



SCRUB BRUSH REMOVAL AND INSTALLATION (CYLINDRICAL)

1 Make sure the key switch is off and disconnect the battery pack before servicing.

2 To access the brushes, swing open both the side skirt assemblies. See Figure 10. Note: The skirts are held in place by Hairpins **(N)** on each side, remove the pins and swing the skirt assemblies out of the way.

3 Loosen the black knobs (one on each side) that secure the removable bearing idler support Plate **(R)** to the brush housing, then pull the plates down and out to remove. Grip the scrub brush and slide it from the housing end.

4 To install the brush slide it into the housing, lift slightly, push and turn until it seats into the drive end assembly.

5 Re-install the idler end plate assemblies, close the skirt assemblies and secure with the hairpins.

SIDE SKIRT MAINTENANCE & ADJUSTMENT (CYLINDRICAL)

General Overview: The side skirts function is to channel the wastewater to the rear pick-up squeegee, helping contain the water within the machine's cleaning path. During normal use the blades will wear in time. The operator will notice a small amount of water leaking out underneath the side skirts. The skirt height adjustment is automatic on this system using spring tension and movable linkage arms to control the blade pressure. The side skirt assemblies must move up and down freely for proper operation.

To replace the scrub system side skirts…

- See Figure 10. Remove the (2) Hairpins **(N)** and swing the skirt assemblies open. Remove the **(S)** Screws and nuts then remove the skirts and replace.

To adjust the scrub system side skirts…

Note: The side skirt blade assemblies have two minor adjustments, they are the individual front collar height and the rear blade pressure spring.

See Figure 12. The stop collar **(T)** is installed on the pivot hinge bolt to help control the front skirt mount bracket's travel when the scrub deck is lowered. It limits the front of the blade from folding (curling) under when scrubbing. Thus allowing the blade to hold its shape better, reduce blade damage and wear.

See Figure 12. A limited amount of adjustment for general blade wear and squeegee wiping performance can be made by reinstalling the spring attachment screw **(U)** into a different mount hole (A, B or C). This change will increase or decrease the spring force (pressure) pulling down on the rear edge of the skirt blade. Position "C" creates maximum down pressure on the blade and position "A" is minimum pressure.

FIGURE 12

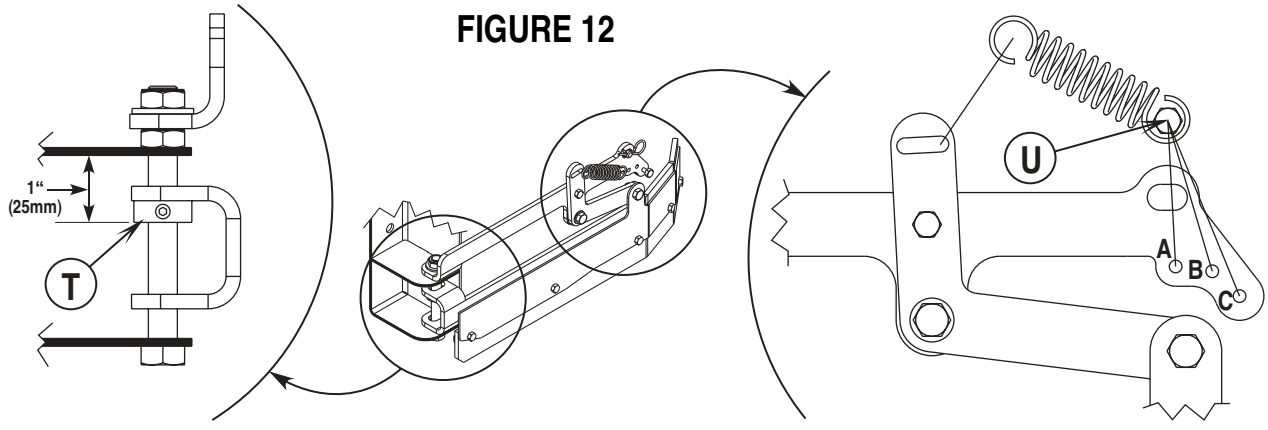


FIGURE 3

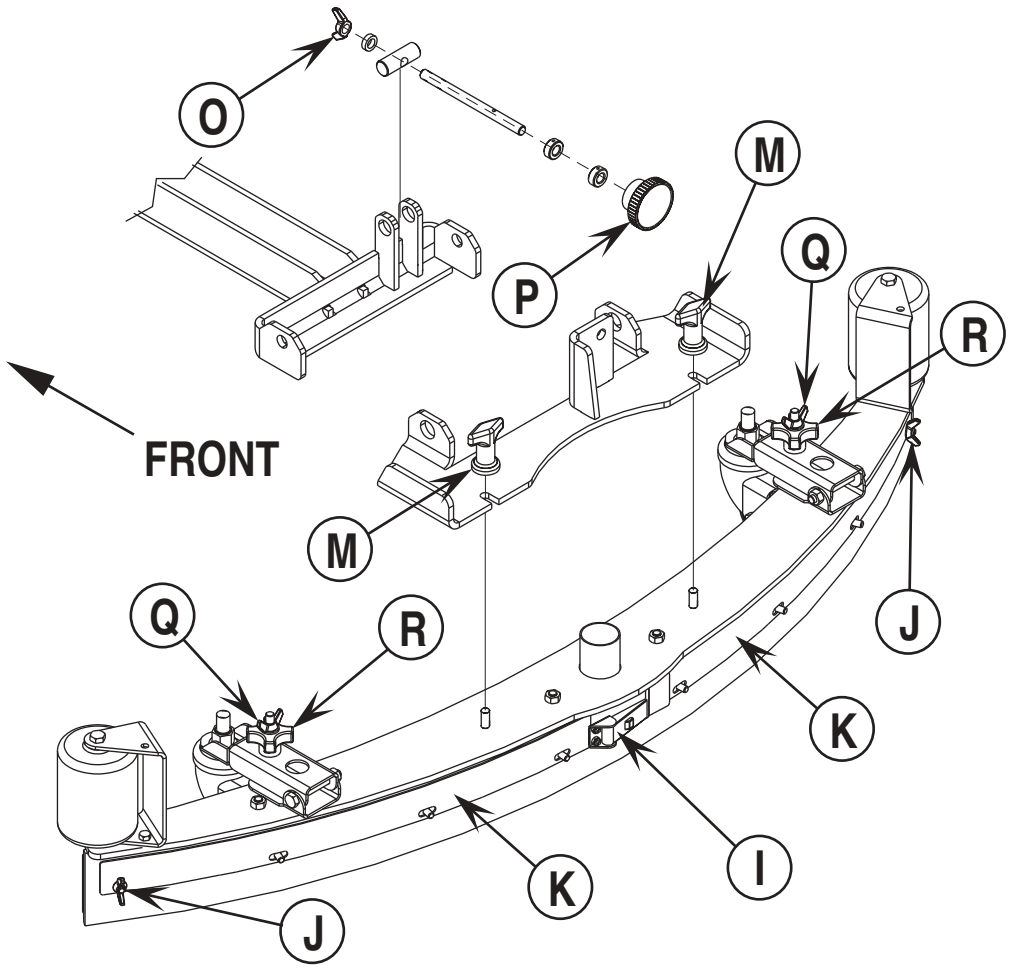
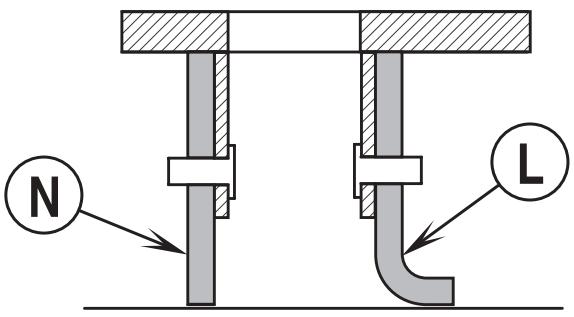


FIGURE 4



BRAKE SHOE ASSEMBLY INSPECTION

⚠ WARNING!

Never work under machine without safety stands or blocking to support the machine.

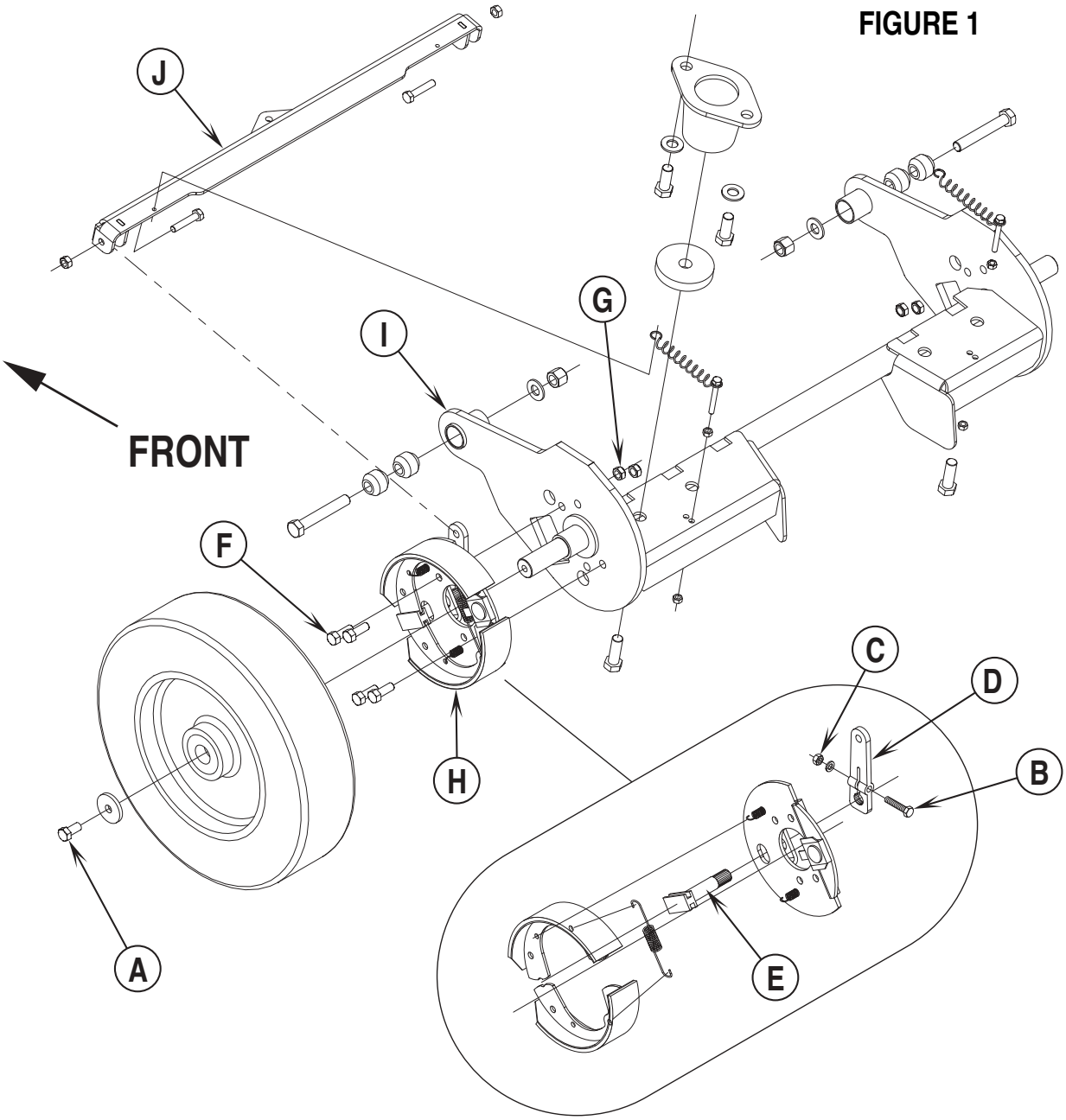
1 See Figure 1. Place wheel chokes on the opposite wheel to be serviced then loosen the hub retainer Bolt **(A)**.
2 Open the brush skirt-housing door and position a jack on the frame rail and lift machine 1- 2 inches off the floor and secure with blocking or safety stand.
3 Remove the hub retainer Bolt **(A)** and rear wheel to inspect and service brake shoes.

REMOVAL OF BRAKE ASSEMBLY

Service Tip: To gain more service access on the back side of the brake assembly remove the scrub brushes, lower scrub deck and disconnect the battery pack by pushing in the emergency disconnect knob **(12)**.

1 Follow steps 1-3 in the Brake Shoe Assembly Inspection section.
2 Remove the Hex Screw **(B)** and Nut **(C)** (pinch bolt) that secures the Brake Arm **(D)** to the brake actuator Spline Shaft **(E)** and pry it off.
3 Next remove using a 13 mm wrench and socket (4) of each hardware items **(F)** & **(G)** (nuts & screws) and then pull the Brake Assembly **(H)** from the Axle Support **(I)**.

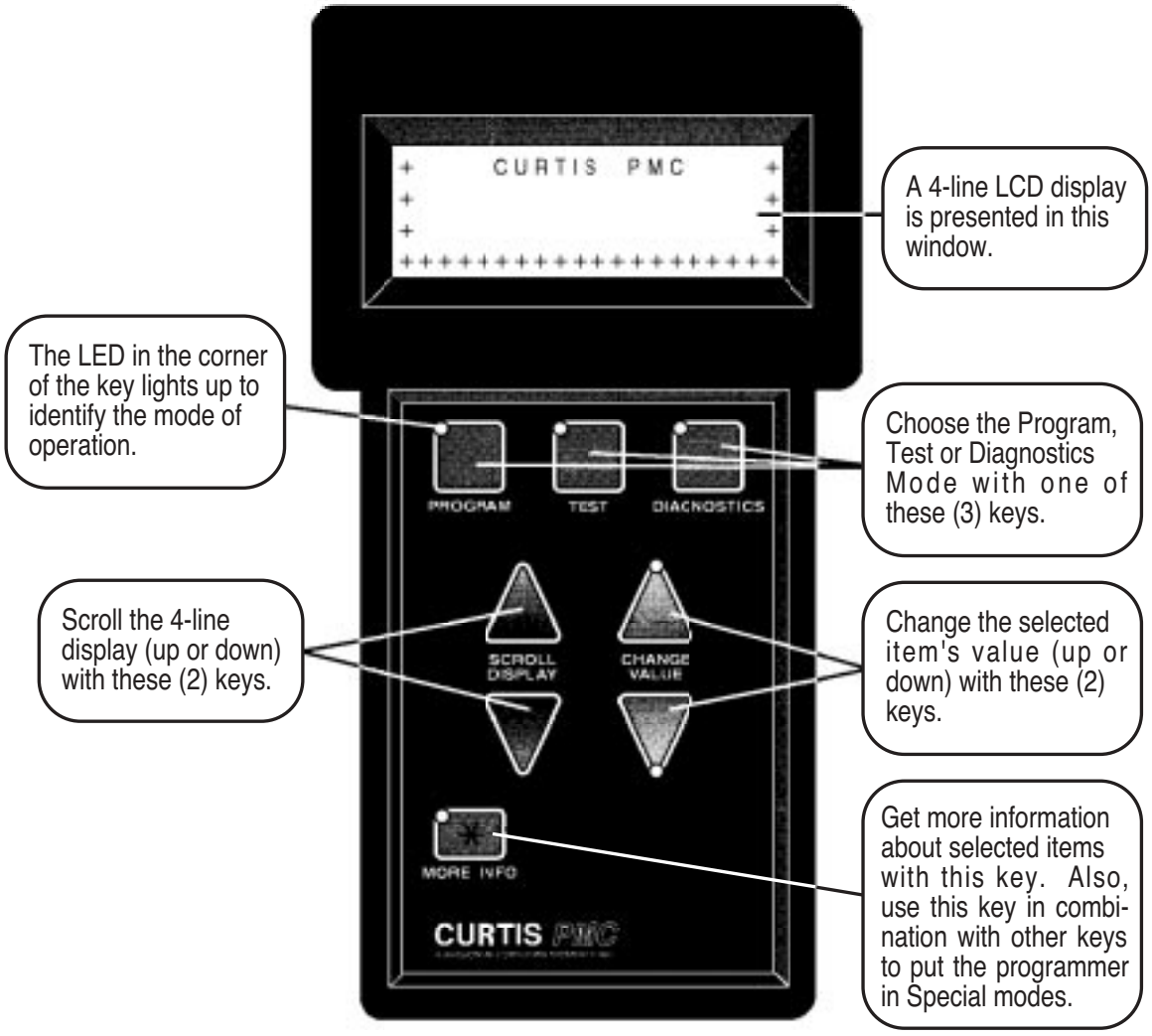
FIGURE 1



PROGRAMMER OPERATION

The optional universal Curtis PMC handheld programmer / **PART NUMBER 56409441** (Figure 7) allows you to program, test, and diagnose Curtis PMC 1243 controllers. The programmer is powered by the host 1243 controller, via a modular connector located in the front of the controller.

FIGURE 7



When the programmer is first plugged into the controller, wait until the programmer has acquired all the controller parameters. When this step has been completed, the programmer displays the controller's model number, date of manufacture and software revision code. Following this initial display, the programmer displays a prompt for further instructions.

ADDITIONAL ERROR CODE TROUBLESHOOTING INFORMATION

When entering the main controller error fault recall mode and a fault Err01 or Err02 has been detected, the service person may see a second set of error codes. Refer to the chart below that shows the additional fault error codes by machine system.

These secondary codes give information on a specific failure that is internal on the control board circuit. Therefore it is important to follow through with all troubleshooting actions of any system faults that support an internal controller circuit failure before replacing a new main control board. Example: A shorted solution solenoid valve causes a control fault 01 or 02 which appears on the machine's hour meter / status display. The service person brings up the fault recall memory and sees additional two-digit number(s) as shown in error code range in the chart below. A complete check of that fault area would be completed before installing a new main control board.

	Error Code	Fault Area By Machine System	Re-check troubleshooting actions for Main Controller Error Codes
A	60 61 89	Vacuum Motor Solenoid	Err24 – Err31
B	62 63 96	Brush Motor Solenoid	Err07 – Err17
C	74	Squeegee Actuator	Err18 – Err20
D	80	Brush Lift Actuator	Err04 – Err06
E	84	Solution Solenoid	Err32 – Err34
F	58	Presweep Output	Err41 – Err46

MISCELLANEOUS ELECTRICAL SYSTEM TROUBLESHOOTING HORN CIRCUIT

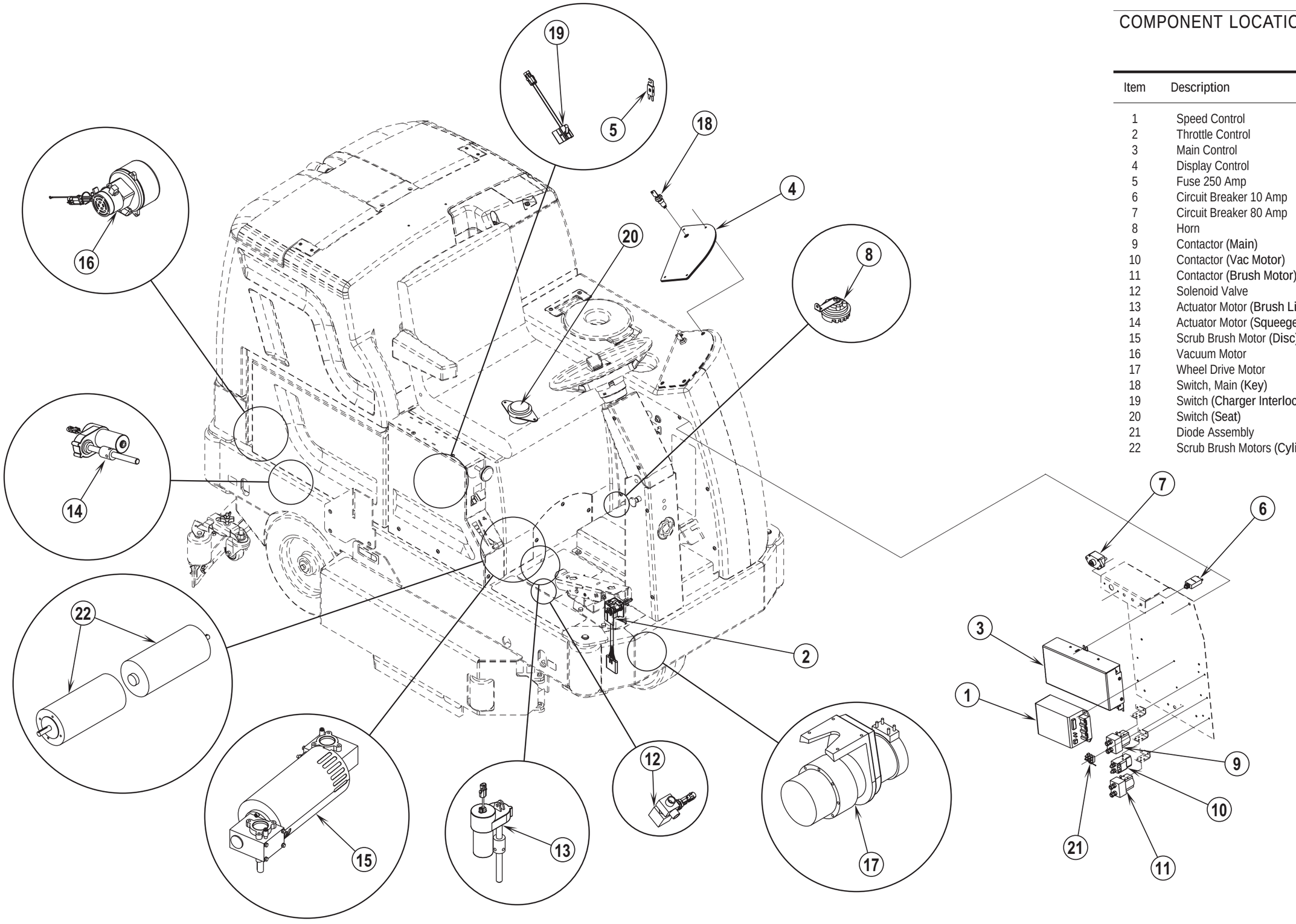
- If the horn doesn't work check for 36V at horn wires. The horn (H3) is mounted under the right front of the machine frame (just below the operator's foot pedal).
- If 0 volts, check for a failure (open) of the 2 Amp fuse F7 located on the main control assemble (A3).

IMPORTANT SERVICE TIP

When troubleshooting the electrical system with a displayed error code also enter the Service Test Mode Program to help diagnosis and confirm a specific failure.

COMPONENT LOCATION

Item	Description
1	Speed Control
2	Throttle Control
3	Main Control
4	Display Control
5	Fuse 250 Amp
6	Circuit Breaker 10 Amp
7	Circuit Breaker 80 Amp
8	Horn
9	Contactor (Main)
10	Contactor (Vac Motor)
11	Contactor (Brush Motor)
12	Solenoid Valve
13	Actuator Motor (Brush Lift)
14	Actuator Motor (Squeegee Lift)
15	Scrub Brush Motor (Disc)
16	Vacuum Motor
17	Wheel Drive Motor
18	Switch, Main (Key)
19	Switch (Charger Interlock)
20	Switch (Seat)
21	Diode Assembly
22	Scrub Brush Motors (Cylindrical)



56407236 HEADLIGHT KIT

For
Advance Hydro-Retriever™ 3200 / Hydro-Retriever™ 3800 (model 56410000)
Nilfisk BR 850 / BR 1100

CONTENTS OF KIT

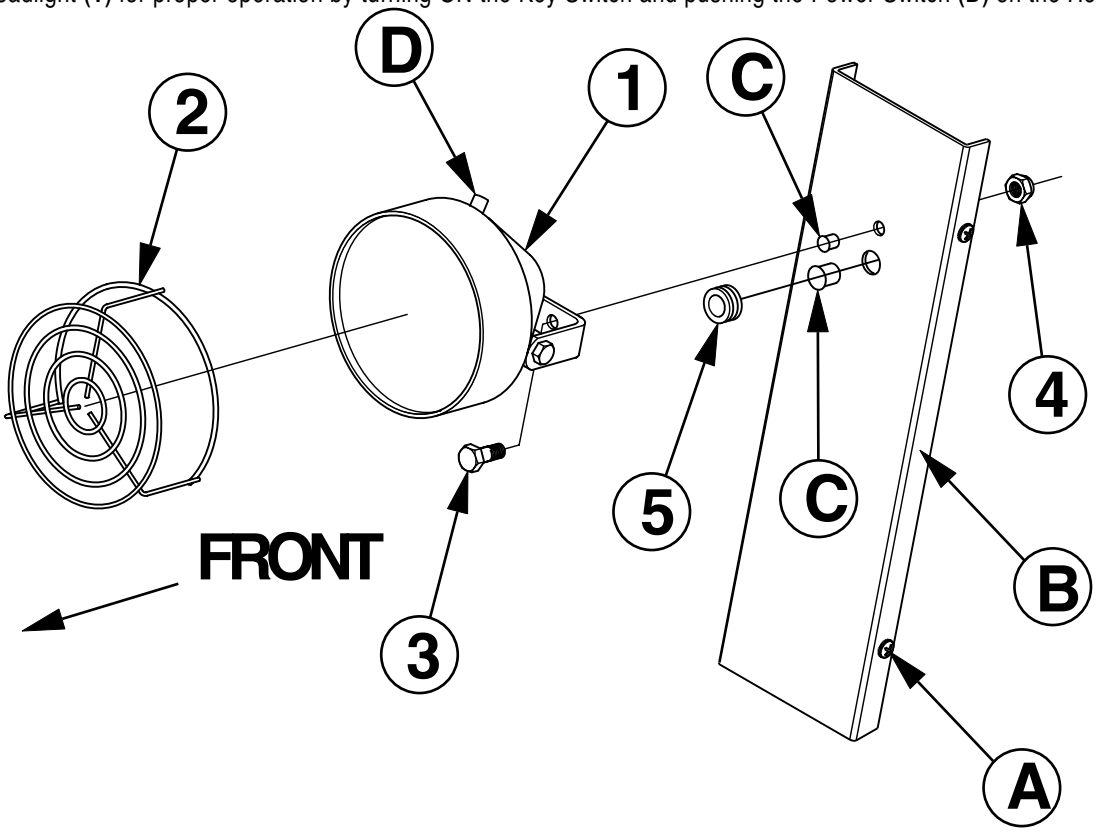
ITEM	PART NO.	QTY	DESCRIPTION
	56040637	1	Instruction Sheet
1	56409239	1	Headlight
2	56409557	1	Headlight Guard
3	56003179	1	Scr, Hex Thd To Hd M8-1.25 x 20mm
4	56003389	1	Nut, Hex Nyl Loc M8-1.25
5	56321540	1	Grommet
6	56172230	2	Terminal Tab .25 Ins

INSTALLATION INSTRUCTIONS

⚠ WARNING!

DISCONNECT BATTERIES BEFORE SERVICING.

1 Turn the key switch OFF and **Disconnect the Batteries**.
2 Remove the (4) **(A)** Screws and remove the Front Panel **(B)**.
3 Remove the (2) **(C)** Button Plugs from the Front Panel **(B)**.
4 Install the Grommet **(5)** into the bottom hole as shown.
5 Insert the wires from the Headlight **(1)** through the Grommet **(5)** and then secure the Headlight to the Front Panel **(B)** as shown, using the Screw **(3)** and Nut **(4)** from the kit. Snap the Headlight Guard **(2)** over the Headlight **(1)** as shown.
6 Connect the (2) Terminal Tabs **(6)** to the Headlight wires.
7 Connect the single BLACK Wire from the Headlight **(1)** to the double BLACK Wire from the Wiring Harness.
8 Connect the single RED Wire from the Headlight **(1)** to the double WHITE/BROWN Wire from the Wiring Harness.
9 Re-install the Front Panel **(B)** on the machine and re-connect the batteries.
10 Test the Headlight **(1)** for proper operation by turning ON the Key Switch and pushing the Power Switch **(D)** on the Headlight **(1)**.



4/98 revised 7/00 Form No. 56040637