FORM NO. 3317-771

TORO®

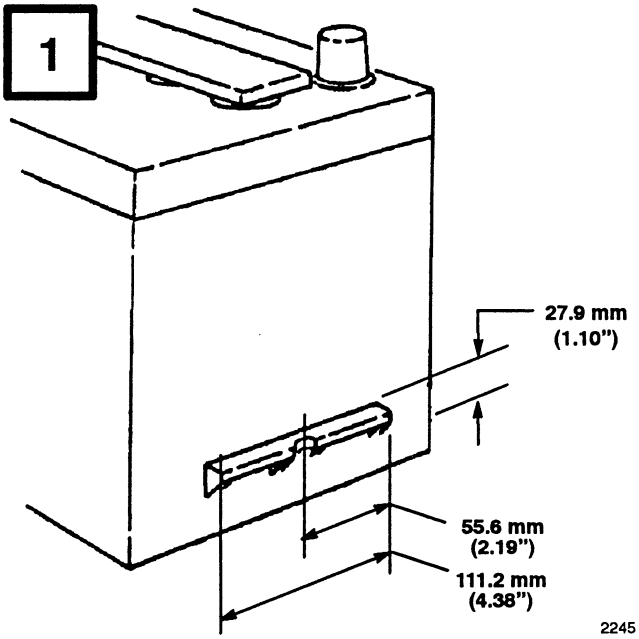
12 Volt Starter Kit

Part No. 93-8040

Installation Instructions

Figures

1



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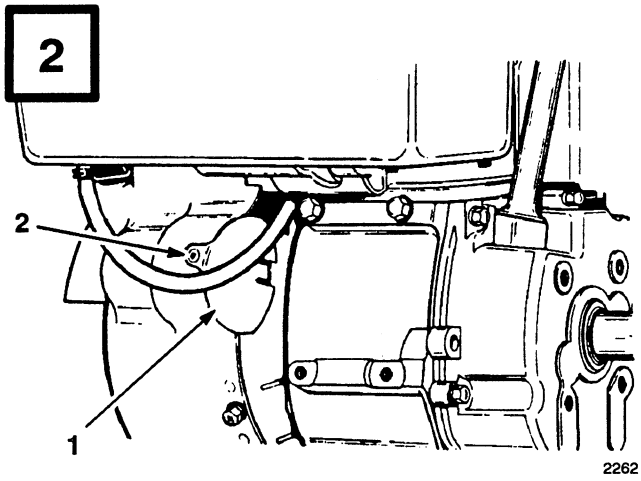
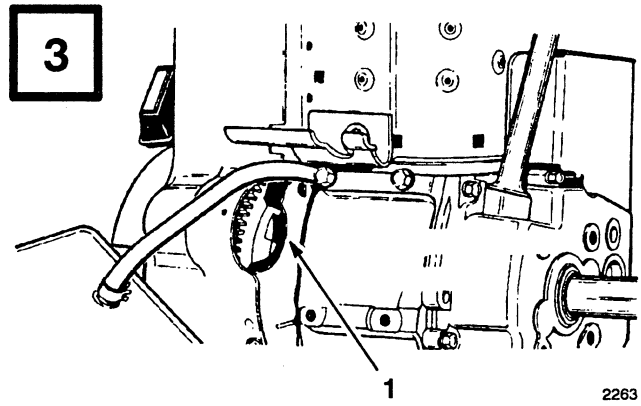


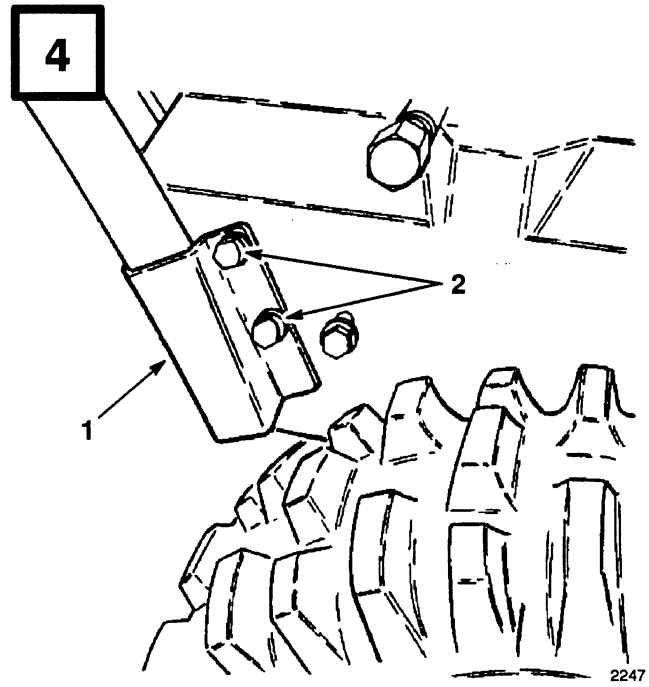
1. Pinion cover
2. Screw

3



1. Clearance notch

4



1. Right handle bracket
2. Screws

Printed in USA

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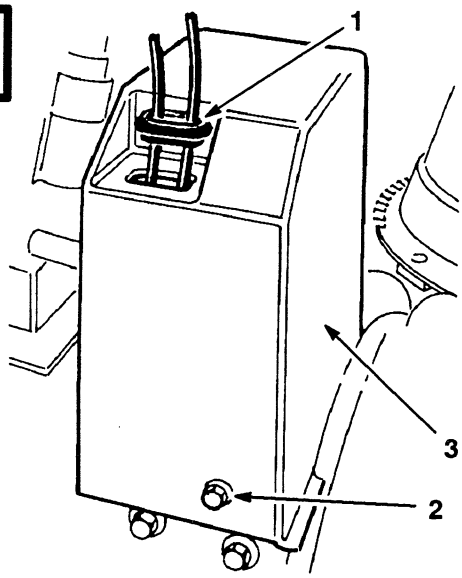

1. Cable cover
2. Screw (3)
3. Belt cover

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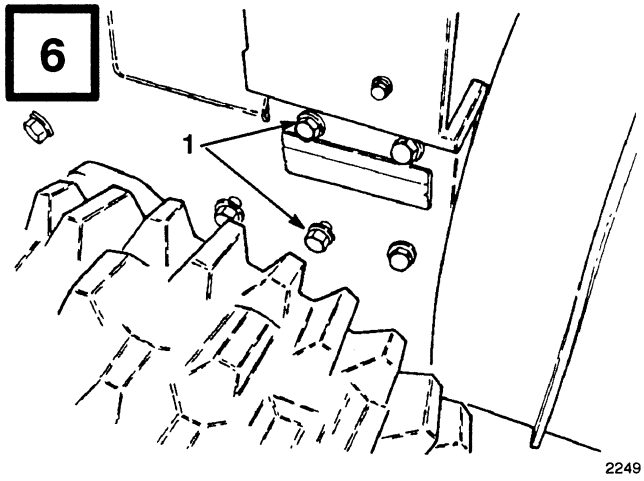

1. Capscrews

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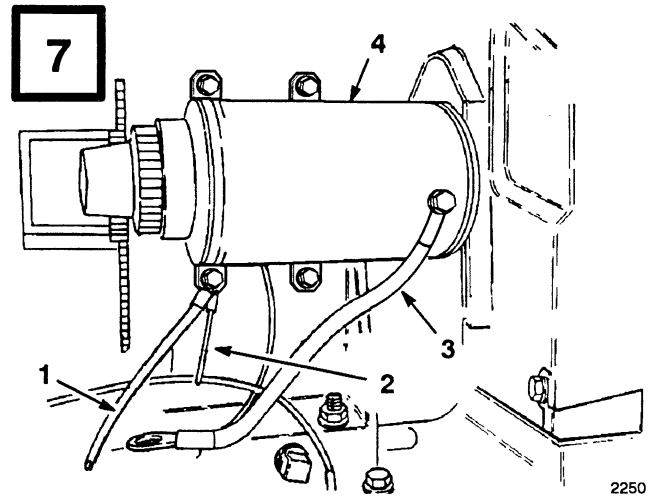
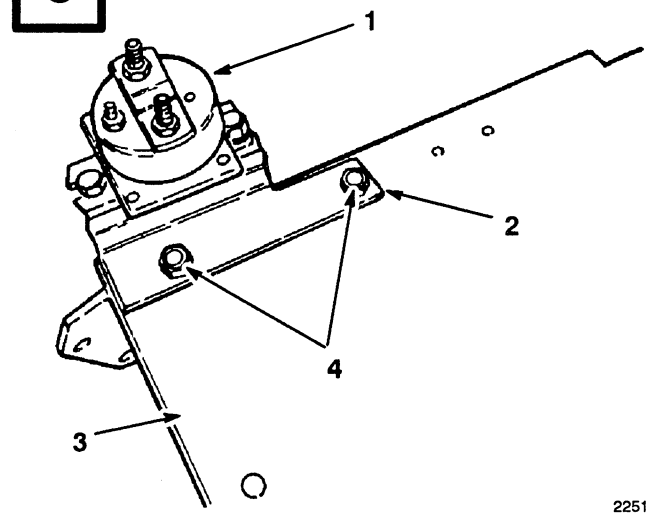


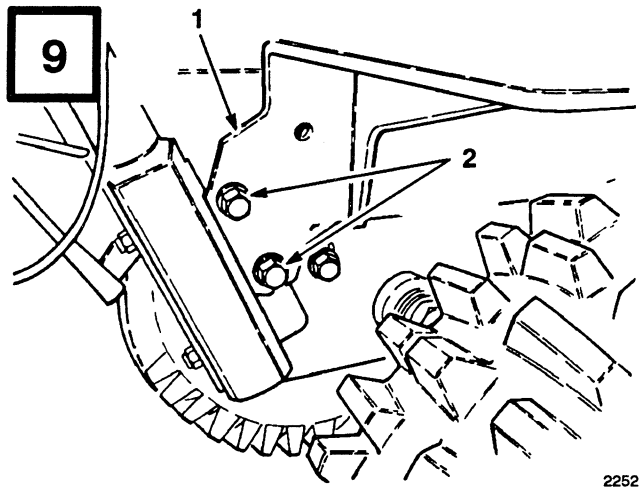
1. Negative battery cable
2. Black charging wire
3. Wire assembly
4. Starter motor

8



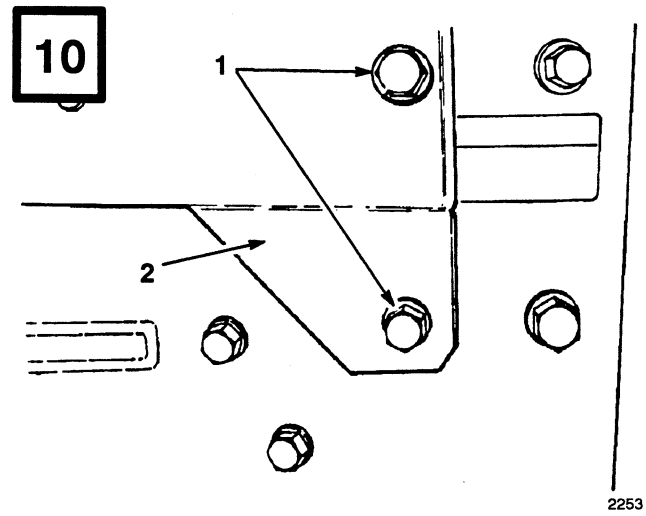
1. Solenoid
2. Solenoid mounting plate
3. Battery mounting plate
4. Thread forming screws

9



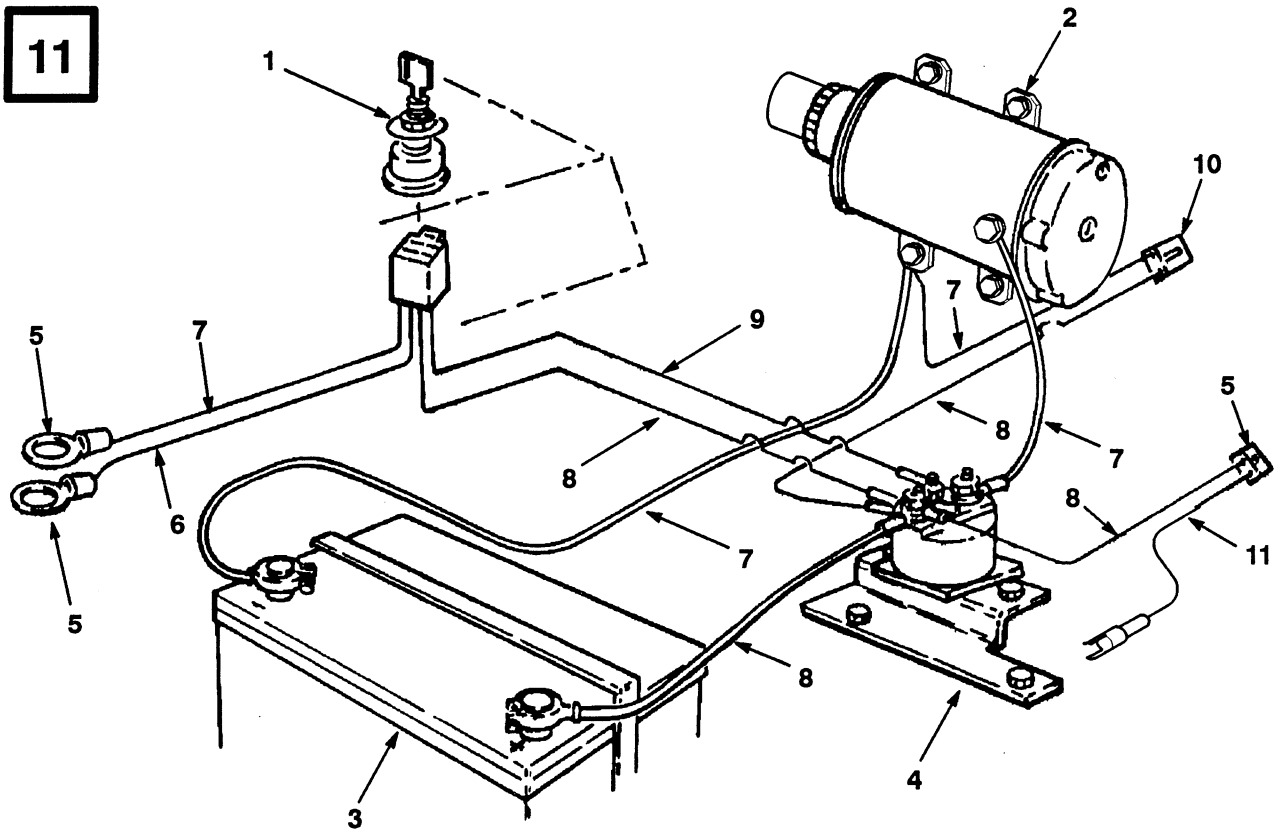
1. Battery plate
2. Flange head screws

10



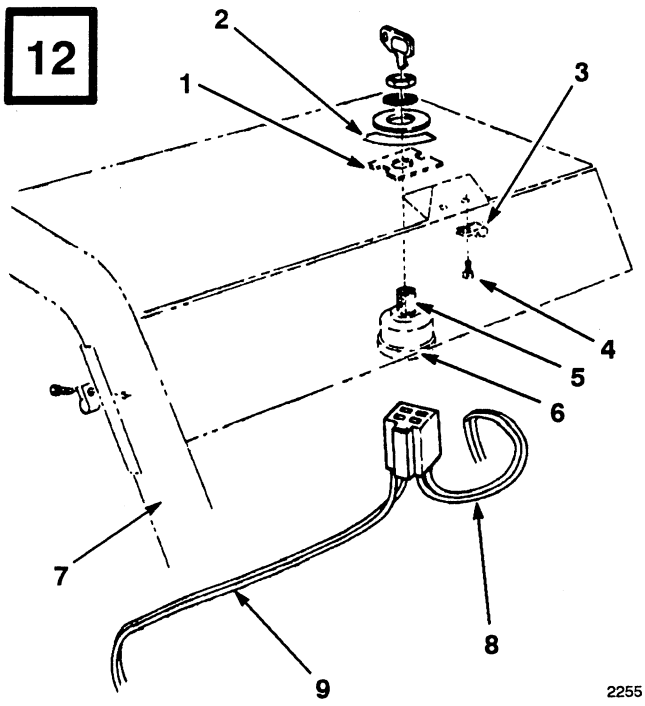
1. Flange head screws
2. Battery mounting plate

11



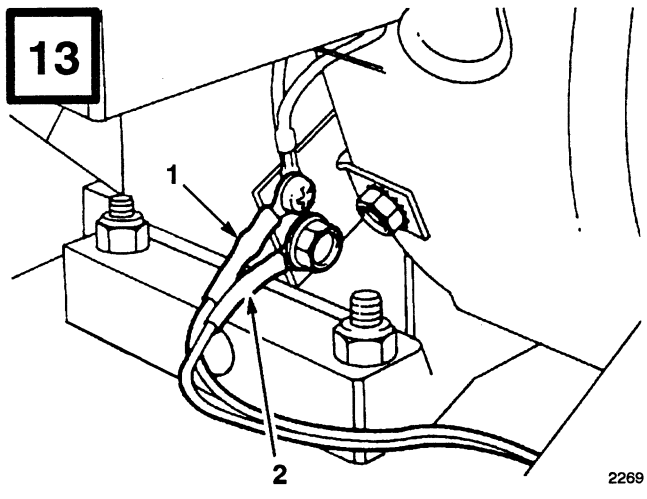
1. Key switch
2. Starter
3. Battery
4. Solenoid
5. To engine
6. Blue
7. Black
8. Red
9. Orange
10. To charger
11. White

12



1. Switch adaptor
2. Decal
3. Cable clip
4. Screw
5. Flat
6. Ignition switch
7. Handle
8. Blue and black
9. Orange and red

13



1. Blue wire
2. Black wire

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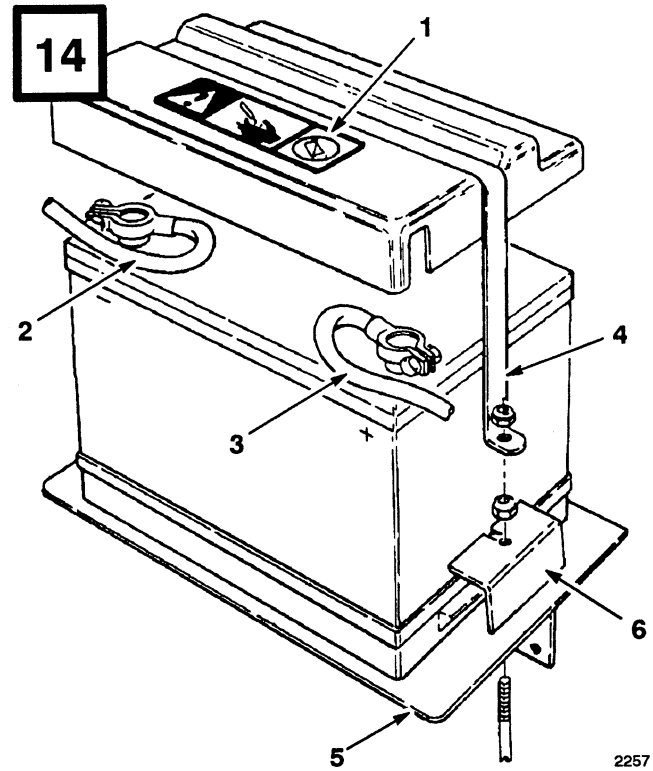

1. Decal
2. Negative cable
3. Positive cable
4. Battery strap
5. Mounting plate
6. Hold down clamp

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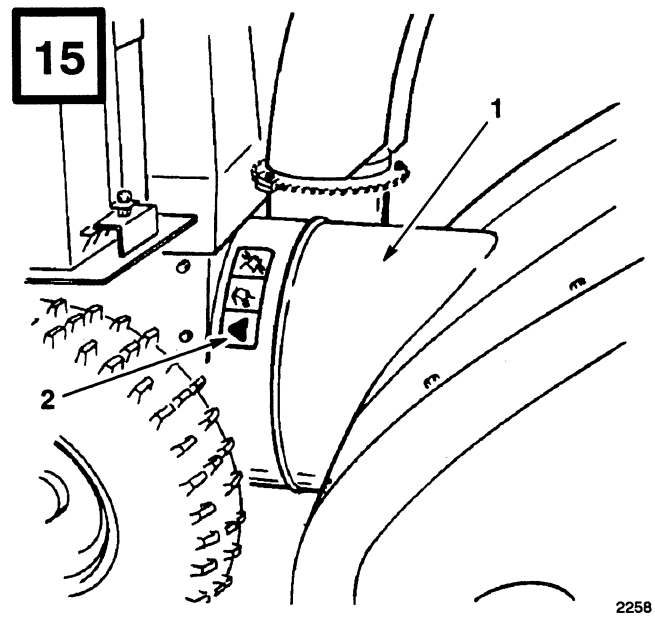

1. Impeller housing
2. Decal

Since this instruction sheet covers only a minimal amount of information necessary to maintain and operate your machine, we suggest that you keep this material with your Operator's Manual so that both may be referred to for instructions concerning safe operation and proper maintenance procedures.

Note: Battery and battery charger are not included in starting motor kit. Recommended battery is 12 volt, type SAE No. 22F, Ref . No. 17MJ16. Recommended battery chargers are 110 volt Toro charger (26-3870) for use in Canada, 220 volt Toro charger (26-7140) for use in Europe or a comparable 1 to 5 amp. charger.

Battery Dimensions (Fig. 1)

Length: 241 mm (9.50 inches)
Width: 172 mm (6.79 inches)
Height: 208 mm (8.17 inches)

Install 12 Volt Starting Motor Kit

1. Remove and discard one screw securing pinion cover to engine. Remove cover (Fig. 2).
2. The clearance notch shown in Figure 3 must be completely open. If it is not open, grip the removable portion with pliers and twist it back and forth until it separates from the engine. Discard this piece.
3. Remove and discard two screws securing front of right handle bracket to engine frame (Fig. 4).
4. Remove three screws securing belt cover to engine base and slide cover up cables (Fig. 5). Do not lose cable cover.
5. Remove and discard two capscrews securing idler pulley assembly to engine frame (Fig. 6).
6. Secure starter motor assembly, negative (black) battery cable and black wire of charging plug (wire with ring terminal end) to engine with four 19 mm (3/4") lg. capscrews as shown in Fig. 7 & Fig. 11. Wires to be attached to bottom mounting screw.

   Note: A two lead wire connector, to be used with charging plug, is provided for use with a non plug-in type charger.

7. Secure solenoid mounting plate to battery mounting plate with two thread forming screws (Fig. 8).
8. Secure solenoid to mounting plate with two capscrews and locknuts as shown in Fig. 8.
9. Tip unit on end and remove right wheel for easier access. Mount rear of battery mounting plate and handle bracket to engine frame with two 19 mm (3/4") lg. flange head screws (Fig. 9).
10. Mount front of battery mounting plate to engine frame and idler assembly with two 25 mm (1") lg. flange head capscrews (Fig. 10).

    Note: Make sure idler pulleys are aligned with belts when securing idler pulley assembly.

11. Reinstall belt cover with three screws previously removed (Fig. 5). Make sure cable cover is plugged into belt cover.
12. Install wire assembly connecting starter motor to inside terminal of solenoid (Fig. 11).
13. Disconnect and remove on-off key switch from control panel. Discard key switch.
14. Disconnect and discard two wires connected to engine from switch.
15. Install new ignition switch as shown in Fig. 12. Make sure that flat on key switch and switch adapter face front of machine.

16. Secure decal on control panel around hole for switch (Fig. 12).

17. Remove old wire harness by removing two screws securing blue and black wires to engine. Remove switch terminal from key switch.

18. Route orange and red wires through cable clips on right hand handle (Fig. 12). Plug harness into switch.

19. Connect orange wire of wire harness to small terminal on solenoid with internal tooth lockwasher and #10 nut (Fig. 11).

20. Route black and blue wires from new switch harness down left handle and secure to appropriate connections on left side of engine where wires were previously removed (Fig. 13).

21. Secure wiring to left and right handles with tie wraps (two per side).

22. Set battery onto mounting plate of snowthrower. Battery posts to be positioned to the outside, not toward the fuel tank (Fig. 14).

23. Secure black (negative) battery cable to negative (-) battery post. Route cable as shown in Fig. 14, so battery cover fits over cable. Tighten cable clamp.

24. Secure red (positive) battery cable to positive (+) battery post as shown in Fig. 14. Tighten cable clamp.

25. Install cover on top of battery. Secure battery to mounting plate. Secure battery in place with capscrews, battery hold down clamps and nuts. Install decal on battery cover as shown (Fig. 14).

26. Install battery strap onto battery cover and slide mounting ends of strap onto ends of capscrews (Fig. 14). Secure parts in place with two nuts.

27. Secure all wires with remaining tie wraps.

28. Install warning decal on impeller housing (Fig. 15).

Maintaining and Charging Battery

Before charging the 12 volt battery, make sure the battery case is not cracked. Also, remove vent caps and look into filler holes. Top of plates must not have ice crystals on them. If ice crystals are evident, do not charge the battery; take battery into warm area (not in living quarters) so it can warm up. After ice crystals are dissolved, battery can be charged.

⚠ CAUTION

POTENTIAL HAZARD
- **Gasses are produced while battery is being charged.**

WHAT CAN HAPPEN
- **Gasses can cause nausea and are explosive.**

HOW TO AVOID THE HAZARD
- **Charge battery in a well-ventilated area.**
- **Do not inhale battery gasses.**
- **Stay away from open flame and electrical sparks and do not smoke while battery is being charged.**

1. Connect battery charger to charging plug on snowthrower.

2. Plug charger into a grounded outlet of proper voltage.

3. Charge the battery for 24 to 36 hours or follow the instructions supplied by manufacturer of charger.

4. After battery is charged, remove power cord of charger from wall outlet. Next, disconnect charger from snowthrower.

⚠ CAUTION

POTENTIAL HAZARD

- **A spark could occur when connecting or disconnecting charger from battery.**

WHAT CAN HAPPEN

- **A spark could cause battery to explode.**

HOW TO AVOID THE HAZARD

- **Unplug charger from wall outlet before connecting or disconnecting charger from battery.**

5. Remove vent caps from battery. Next, check level of electrolyte in each cell. Add drinking water to the battery if electrolyte is not up to the ring at bottom of filler neck. ADD WATER ONLY AFTER CHARGING THE BATTERY. If large quantity of water again has to be added, install vent caps and charge battery again.

   Note: A connector with two lead wires is provided if it is necessary to use a non plug-in type charger.