



12 Volt Starter Kit
For 2-stage Snowthrowers

Part No. 99-9316

For models with serial numbers 9900001 and up

Operator's Manual

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 the starting motor kit. Recommended battery is 12 volt, type SAE No. 22F, Ref. No. 17MJ16.

Battery Dimensions

Length: 241 mm (9.50 inches)

Width: 172 mm (6.79 inches)

Height: 208 mm (8.17 inches)

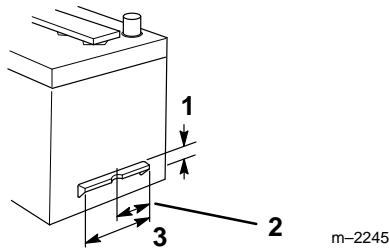


Figure 1

1. 27.9 mm (1.10")
2. 55.6 mm (2.19")
3. 111.2 mm (4.38")

Installing the 12 Volt Starting Motor Kit

1. Remove and discard one screw securing the pinion cover to the engine and remove the cover (Fig. 2).

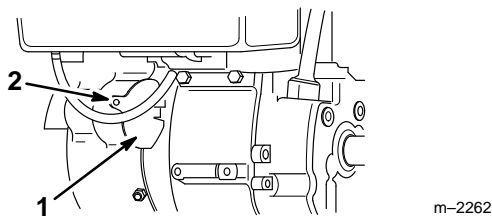


Figure 2

1. Pinion cover
2. Screw

2. The clearance notch shown in Figure 3 must be completely open. If it is not, grip the removable portion with a pliers and twist it back and forth until it separates from the engine. Discard this piece.

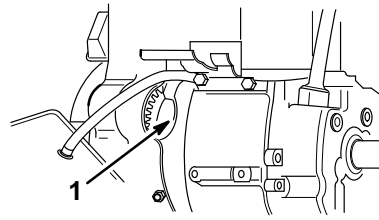


Figure 3

1. Clearance notch

3. Remove and discard the two screws securing the front of the right handle bracket to the engine frame (Fig. 4).

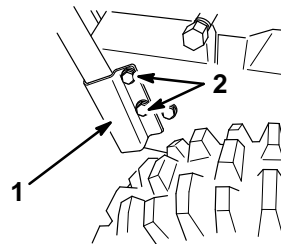


Figure 4

1. Right handle bracket
2. Screws

4. Remove the three screws securing the belt cover to the engine base and slide the cover up the cables (Fig. 5). Do not lose the cable cover.

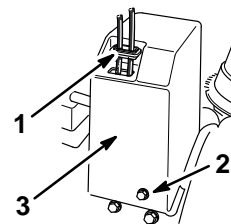


Figure 5

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

5. Remove and discard the two capscrews securing the idler pulley assembly to the engine frame (Fig. 6).

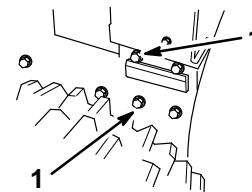


Figure 6

1. Capscrews

- Secure the starter motor assembly, negative (black) battery cable, and black wire of the charging plug (wire with ring terminal end) to the engine with four 19 mm (3/4") lg. capscrews as shown in Figures 7 and 8. The wires should be attached to the bottom mounting screw.

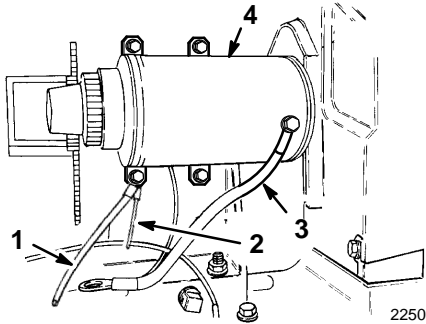


Figure 7

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

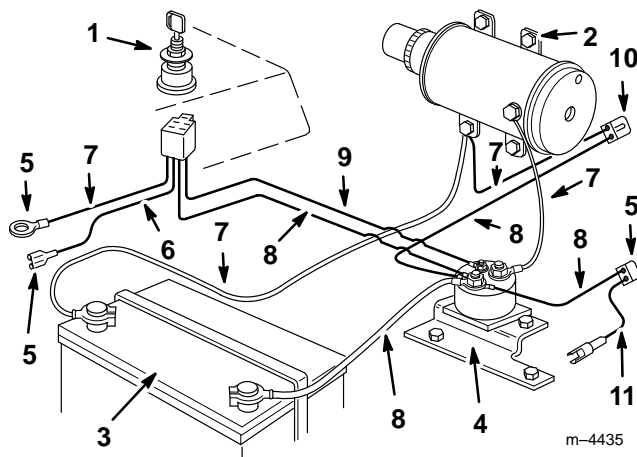


Figure 8

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

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

- Secure the solenoid mounting plate to the battery mounting plate with two thread forming screws (Fig. 9).
- Secure the solenoid to the mounting plate with two capscrews and locknuts as shown in Figure 9.

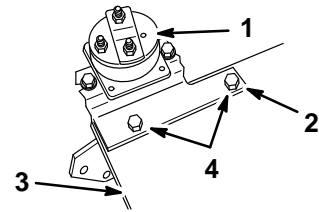


Figure 9

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

- Drain the gasoline and oil from the snowthrower; refer to the operator's manual.
- Tip the unit on end and remove the right wheel for easier access.
- Mount the rear of the battery mounting plate and handle bracket to the engine frame with two 19 mm (3/4") lg. flange head screws (Fig. 10).

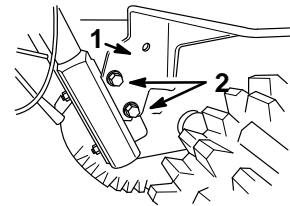


Figure 10

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|------------------|-----------------------|
| 1. Battery plate | 2. Flange head screws |
|------------------|-----------------------|

- Mount the front of the battery mounting plate to the engine frame and idler assembly with two 25 mm (1") lg. flange head capscrews (Fig. 11).

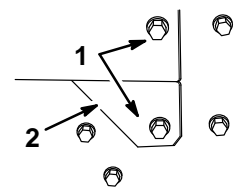


Figure 11

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|-----------------------|---------------------------|
| 1. Flange head screws | 2. Battery mounting plate |
|-----------------------|---------------------------|

Note: Ensure that the idler pulleys are aligned with belts when securing idler pulley assembly.

- Install the belt cover with three screws previously removed (Fig. 5). Ensure that the cable cover is plugged into the belt cover.
- Install the wire assembly connecting the starter motor to the center terminal of the solenoid (Fig. 8).
- Drill a 16 mm (5/8") diameter hole in the control panel, located as illustrated in Figure 12.

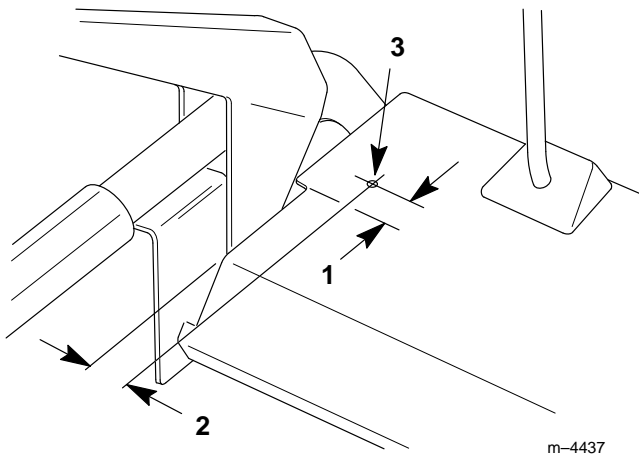


Figure 12

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|-------------------|-------------------------|
| 1. 35 mm (1-3/8") | 3. 16 mm (5/8 in. Dia.) |
| 2. 35 mm (1-3/8") | |

16. Install the ignition switch (Fig. 13). Ensure that the flat side on the switch and switch adaptor face the front of the machine.

17. Install the new wire harness on the ignition switch as illustrated in Figures 8 and 13.

18. Secure the decal on the control panel around the hole for the switch (Fig. 13).

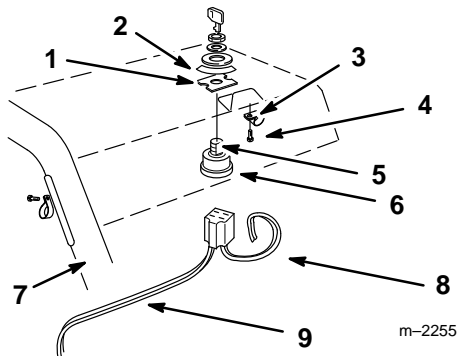


Figure 13

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

19. Route the orange and red wires through the cable clips on the right hand handle (Fig. 13).

20. Plug the harness into the switch.

21. Connect the orange wire of the wire harness to the small terminal on the solenoid with an internal tooth lockwasher and #10 nut (Fig. 8).

22. Unplug the green magneto wire from the engine and connect the blue wire from the harness to the terminal on the engine (Fig. 14).

23. Attach the black wire to the recoil fastener bolt and nut, as illustrated in Figure 14

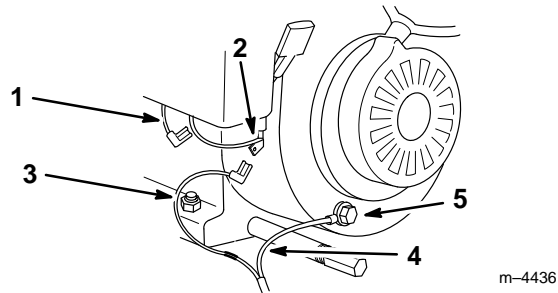


Figure 14

- | | |
|---------------------------|---------------------------------|
| 1. Green | 4. Black |
| 2. Terminal on the engine | 5. Recoil fastener bolt and nut |
| 3. Blue | |

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

25. Set the battery onto mounting plate of the snowthrower. The battery posts should be positioned to the outside, not toward the fuel tank (Fig. 15).

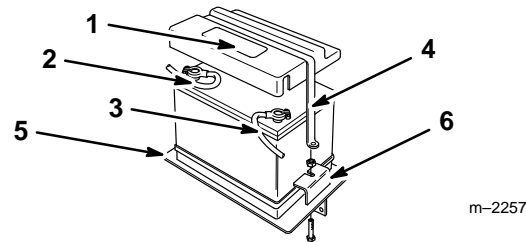


Figure 15

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|-------------------|--------------------|
| 1. Decal | 4. Mounting plate |
| 2. Negative cable | 5. Hold down clamp |
| 3. Positive cable | |

26. Secure the black (negative) battery cable to the negative (-) battery post. Route the cable as shown in Figure 15, so the battery cover fits over the cable. Tighten the cable clamp.

27. Secure the red (positive) battery cable to the positive (+) battery post as shown in Fig. 15. Tighten the cable clamp.

28. Install the cover on top of the battery (Fig. 15).

29. Secure the battery to the mounting plate with capscrews, battery hold down clamps, and nuts (Fig. 15).

30. Install the decal on battery cover as shown in Figure 15.

31. Install the battery strap onto the battery cover and slide the mounting ends of the strap onto ends of the capscrews (Fig. 15). Secure all parts in place with two nuts.
32. Secure all wires with the remaining tie wraps.
33. Install the warning decal on the impeller housing (Fig. 16).

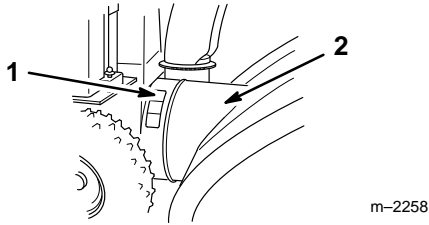


Figure 16

1. Decal
2. Impeller housing

Maintaining and Charging the Battery

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

Toro recommends that you use either a 110 volt Toro charger or a 220 volt Toro charger, depending on your area's power supply. You can also use a comparable 1 to 5 amp. charger.

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 the battery charger to the charging plug on the snowthrower.
2. Plug the 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 the charger.
4. After the battery is charged, remove the power cord of the charger from the wall outlet.
5. Disconnect the charger from the snowthrower.

CAUTION

POTENTIAL HAZARD

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

WHAT CAN HAPPEN

- A spark could cause the battery to explode.

HOW TO AVOID THE HAZARD

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

6. Remove the vent caps from the battery.
7. Check the level of electrolyte in each cell.
8. Add drinking water to the battery if the electrolyte is not up to the ring at bottom of filler neck. **Add water only after charging the battery.** If a large quantity of water has to be added, install the vent caps and charge the battery again.

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

