



## Heat Shield Kit

for 19hp Kawasaki and Kohler Engines

Part No. 100-3989

### INSTALLATION INSTRUCTIONS

## Loose Parts

**Note:** Use the chart below to identify parts for assembly.

DESCRIPTION	QTY.	USE
Heat Shield	1	Installing Heat Shield
Flat Washers	3	
Bolts	3	
Nuts	3	
Gaskets for Kawasaki Engine	2	
Gaskets for Kohler Engine	2	

**IMPORTANT:** This kit is for units that have no heat shield or have a flat heat shield installed. If the unit has a heat shield like the one in figure 1 then no rework is required.

### CAUTION

#### POTENTIAL HAZARD

- Components around engine will be hot if the machine has been running.

#### WHAT CAN HAPPEN

- Touching hot components can cause burns.

#### HOW TO AVOID THE HAZARD

- Allow the machine to cool before performing maintenance.
- Do not touch engine components when hot.

## Removing Muffler

1. Remove lock washers and nuts holding muffler to engine manifold and the lower support hardware. Move muffler away from engine. Save lock washers, nuts and lower support hardware (Fig. 1).
2. Remove all gasket material from muffler and engine manifold.

**Note:** The muffler can remain in the rear bumper area.

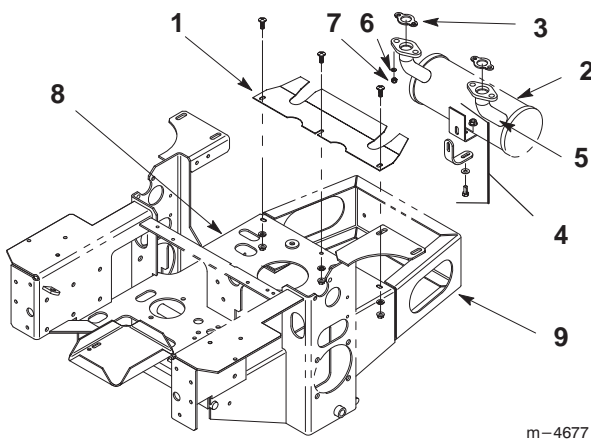


Figure 1

- |   |                  |
|---|------------------|
| 1. Heat Shield                                | 5. Muffler Tubes |
| 2. Muffler                                    | 6. Lock Washer   |
| 3. Muffler Gaskets                            | 7. Nut           |
| 4. Muffler Lower Support Bracket and Hardware | 8. Engine Deck   |
|   | 9. Rear Bumper   |

## Machines without holes in Engine Deck and no existing Heat Shield

**Note:** You have to drill holes into the engine deck if none exist for the heat shield.

1. Check the engine deck for holes under the exhaust manifold. If there are no holes, you will need to drill holes into the engine deck.
2. Remove both the left and right rear engine guards (Fig. 2).

**Note:** Do not remove hydraulic reservoir from right rear engine guard. Make sure reservoir stays in upright position (Fig. 2).

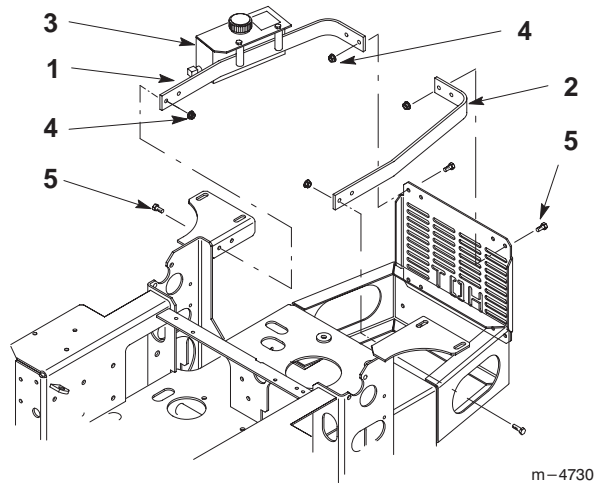


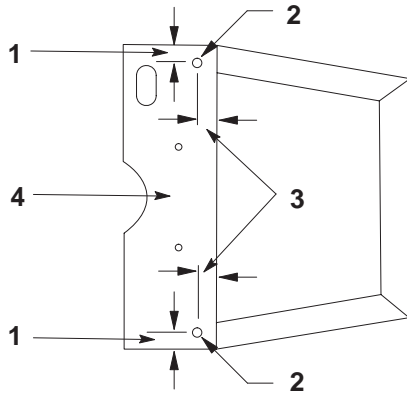
Figure 2

- |  |         |
|--|---------|
| 1. Right Rear Engine Guard             | 4. Nut  |
| 2. Left Rear Engine Guard              | 5. Bolt |
| 3. Hydraulic Reservoir (Keep Up Right) |         |

3. Remove the four engine bolts that hold engine to deck. This will allow you to gain access to punch and drill holes.

4. Mark and firmly center punch the two hole locations as shown in figure 3.

**Note:** The middle hole does not need to be marked.



**Figure 3**

- |                         |                            |
|-------------------------|----------------------------|
| 1. 15/16"               | 3. 1"                      |
| 2. 13/32" Hole to Drill | 4. Top view of Engine Deck |

5. Drill 3/16" pilot holes and then drill 13/32" holes into engine deck (Fig. 3).

**Note:** It is not necessary to install a bolt in the middle of heat shield. The middle hole does not need to be drilled.

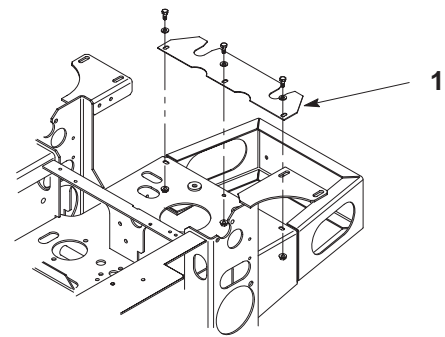
6. Reinstall the four engine mounting bolts. Torque bolts to 25–30 ft-lbs.
7. Reattach engine guard straps.
8. Proceed to Installing Heat Shield on page 4.

## Machines with holes in Engine Deck and no existing Heat Shield

**Note:** Proceed to Installing Heat Shield on page 4.

## Machines with a Kohler Engine and an existing Heat Shield

1. Remove the existing flat heat shield and discard heat shield and hardware (Fig. 4).



**Figure 4**

1. Existing Flat Heat Shield (Remove)

2. Proceed to Installing Heat Shield on page 4.

## Machines with a Kawasaki Engine and an existing Heat Shield

1. Loosen all engine mounting bolts.
2. Remove the rear engine bolts and tip engine forward to gain access to center heat shield bolt.
3. Remove the existing flat heat shield and discard heat shield and hardware (Fig. 4).
4. Loosely install new hardware in the center slot in the engine deck (Fig. 5).
5. Reinstall the engine bolts and tighten all engine bolts to 25–30 ft–lbs.
6. Proceed to Installing Heat Shield on page 4.

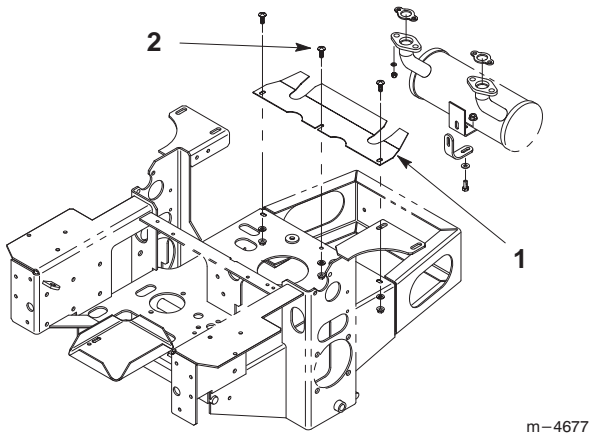


Figure 5

1. Heat Shield
2. Center Hardware (Loosely Installed)

## Installing Heat Shield

1. Position heat shield on top of the engine deck with large slots toward the rear of the machine. Align slots in heat shield with holes or slots in engine deck (Fig. 6).

**Note:** If center bolt is installed, make sure the center slot engages the neck of the carriage bolt.

2. Install bolts, flat washers, and locknuts. Do not tighten hardware. (Fig. 6).

**Note:** If you drilled holes in the engine deck, the middle bolt, flat washer and lock nut will not be installed.

3. Install appropriate gaskets onto the engine manifold (Fig. 1). Determine the correct gaskets by which fits correctly on manifold.
4. Install muffler onto the engine manifold with lock washers and nuts. Install muffler lower support bracket and hardware (Fig. 1 and 6).
5. Position heat shield as far rearward as possible and tighten bolts, flat washers and locknuts (Fig. 6).

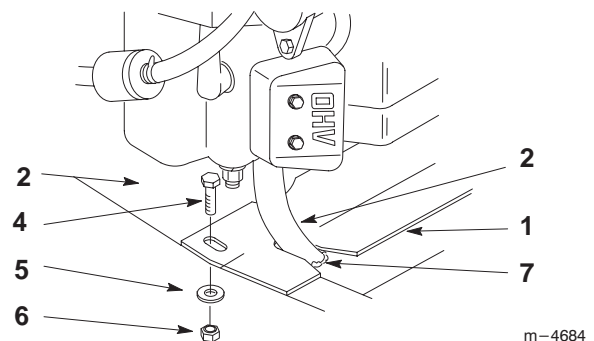


Figure 6

1. Heat Shield
2. Engine Deck
3. Muffler Tubes
4. Bolt
5. Flat Washer
6. Locknut
7. Large Slot in Heat Shield