



## Heavy Duty Air Cleaner Kit for Out Front Z

Part No. 100-2402  
Part No. 100-2403  
Part No. 100-2404

### INSTALLATION INSTRUCTIONS

## Loose Parts

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

DESCRIPTION	QTY.	USE
Carburetor	1	Install New Carburetor
Adapter Plate	1	
Carburetor Gasket	1	
Air Cleaner Base Gasket	1	
Air Cleaner Adapter Gasket	1	
Adapter	1	
Air Cleaner Bracket	1	
Screws	7	
Plug	2	
Screws	2	
Air Cleaner w/90° Inlet	1	
A/C Bracket	1	
Hood	1	
Nut	1	
Template #1	1	Cut Holes in Plastic Tank
Template #2	1	
Rubber Grommet	1	Install Air Intake Hose
Air Intake Hose	1	
R-Clamp	1	
Screw	1	
Flange Connector	1	Install Flange Connector
Radiator Clamp	1	
Screws	1	
Template #3	1	Drill Holes in Bumper

DESCRIPTION	QTY.	USE
Air Cleaner Bracket	1	Install Air Cleaner Bracket
Hex Head Screw	2	
Nuts	2	
Air Cleaner	1	Install Air Cleaner
Hex Head Screw	2	
Nuts	2	
Radiator Clamp	2	Install Hoses to Air Cleaner
Filter Finder Kit	1	Install Filter Finder Kit
Filter Guard	1	Install Guard and Cover
Cover Plate	1	
Screws	3	
Nuts	3	
Wing Nut	2	
Carriage bolts	2	

This kit contains a heavy-duty air cleaner, carburetor, hose adapter, hoses and mounting hardware. This creates a complete heavy-duty air cleaner system for Toro Out Front Z Mowers with Kohler Command Twin Cylinder Engines.



## CAUTION

### POTENTIAL HAZARD

- If you leave the key in the ignition switch, someone could start the engine.

### WHAT CAN HAPPEN

- Accidental starting of the engine could seriously injure you or other bystanders.

### HOW TO AVOID THE HAZARD

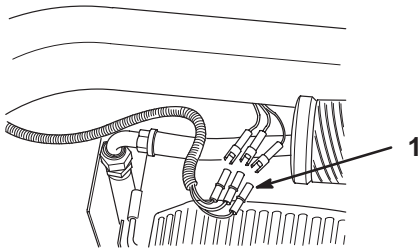
- Remove the key from the ignition switch and pull the wire(s) off the spark plug(s) before you do any maintenance. Also push the wire(s) aside so it does not accidentally contact the spark plug(s).

## Pre-Installation

1. Disengage the power take off (PTO), set the parking brake, and turn the ignition key to "OFF" to stop the engine. Remove spark plug wire(s) and remove the key.
2. Tilt hopper up remove all grass from hopper.
3. Thoroughly remove all grass and debris from around the engine and plastic console on left side.

## Removing Hopper

1. Tilt hopper up.
2. Disconnect the wire harnesses along the rear left side frame as shown in figure 1. Ensure that it is free of the frame.
3. Remove safety clip from end of gas spring to hopper. Disconnect gas spring from ball stud attached to machine frame (Fig. 2). Support hopper to prevent falling.
4. Lower hopper. Remove both clevis pins from the rear frame that the hopper pivots on. Remove hopper. (Fig. 2).



M-4582

Figure 1

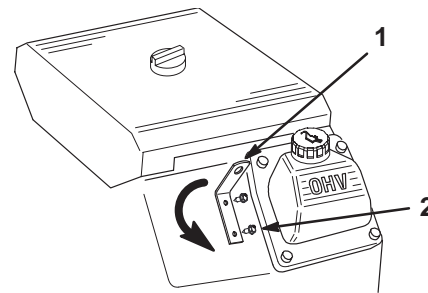
1. Wire Harness

## Turning Engine Lift Hook

Turning the engine lift hook will allow clearance for hose installed later in this instruction sheet. Keep the hook and hardware for future use if needed.

**IMPORTANT: Return lift hook to original position before it is used for to remove engine.**

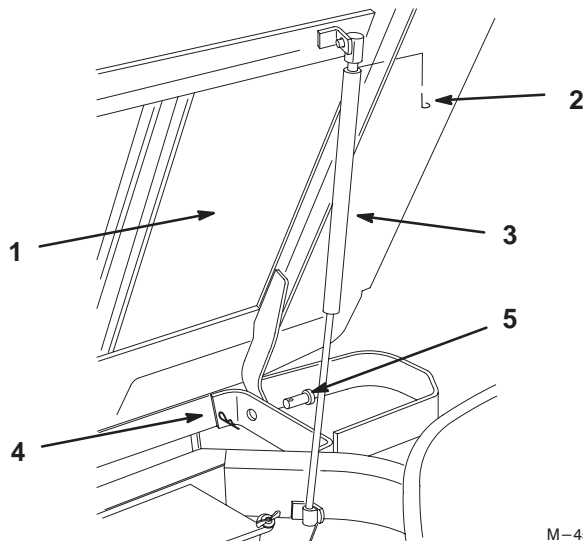
1. Locate on engine the lift hook in figure 3.
2. Remove the lift hook from engine.
3. Rotate lift hook 180 degrees and reinstall.



M-4583

Figure 3

1. Engine Lift Hook
2. Screws



M-4581

Figure 2

1. Hopper
2. Safety Clip
3. Gas Spring
4. Hair Pin
5. Clevis pin

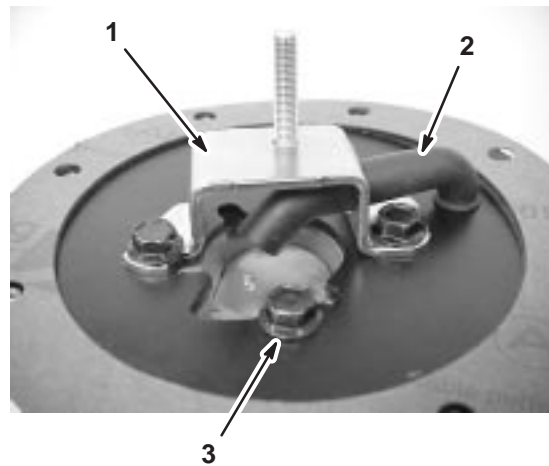
## Removing Carburetor

1. Remove all existing air cleaner components attached to the carburetor. Save the three mounting screws from the air cleaner base plate and discard everything else.
2. Have an appropriate container ready to catch any remaining fuel that might leak out and disconnect the fuel line from the carburetor.
3. Follow the red lead from the fuel shut-off solenoid on the front of the carburetor and disconnect it from the harness plug.
4. Remove and save the two carburetor mounting screws.

5. Lift and pivot the carburetor to unhook the choke link, throttle link, and throttle dampening spring attached to the carburetor. Discard the old carburetor.
6. Remove the carburetor gasket from the intake manifold and clean off any remaining material using an aerosol gasket remover.  
**IMPORTANT: Do not nick or scratch manifold surface.**
6. Check the equipment throttle and choke controls for proper operation. Be sure the plates in the carburetor are opening and closing fully with the movement of the control levers.
7. Connect the lead wire from the fuel shut-off solenoid.
8. Reconnect the fuel line to the carburetor inlet and secure with the clamp. Make sure the fuel line does not interfere with any of the linkages.

## Installing Carburetor

1. Install the two triangular plugs from the kit into the air ducts on the top of the blower housing. Start the two thread-forming screws from the kit into the holes in the front of the air ducts. Tighten the screws until the plugs are locked into place (Fig. 5).
2. Install the new carburetor gasket onto the intake manifold. Make sure all holes are aligned and open. A dab of gasket adhesive may be used to keep it in position (Fig. 5).
3. Reconnect the choke link, throttle link, and throttle dampening spring into the corresponding levers of the new carburetor (Fig. 5).
4. Set the carburetor into position on the gasket/intake manifold and install the two mounting screws saved in step 4 of Removing Carburetor. Lightly finger tighten the screws (Fig. 5).
5. Hold the governor lever toward the carburetor as far as it will go. Check that the throttle plate is wide open in this position. If the throttle plate is not wide open, keep pressure against the governor lever and shift the carburetor until the plate is wide open. Torque the two mounting screws to 9.9 N•m (88 in.-lb.).
10. Position the new adapter plate over the carburetor gasket and pull the breather tube through the corresponding hole until the plate is seated between the flanges. Assemble the new air cleaner bracket to the top of the new air cleaner base, inserting the breather tube through the hole in side of bracket. Make sure the end of the breather tube points toward the center of carburetor throat. Install the three mounting screws removed in step 1 of Removing Carburetor, page 3. Torque the screws to 88 in. lb (9.9 N•m). See figure 4.

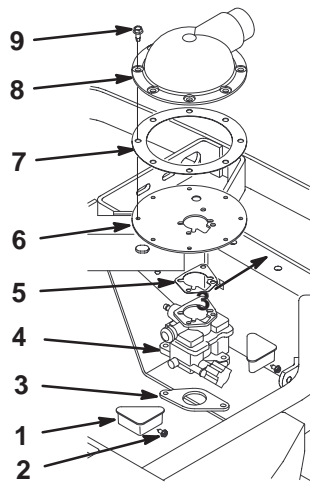


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**Figure 4**

- |                        |                   |
|------------------------|-------------------|
| 1. Air Cleaner Bracket | 3. Mounting Screw |
| 2. Breather Tube       |                   |

11. Position the new adapter plate over the carburetor gasket and pull the breather tube through the corresponding hole until the plate is seated between the flanges. The end of the breather hose must point into the carburetor throat. Install the three mounting screws removed in step 1 and torque them to 9.9 N•m (88 in. lb) (Fig. 5).
12. Position the adapter gasket and air intake adapter onto the adapter plate, so the hose connection neck is facing straight back in the engine compartment. Secure with the seven M6 thread-forming screws. Torque the screws to 10.7 N•m (95 in.-lb.) (Fig. 5).



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**Figure 5**

- |                            |                       |
|----------------------------|-----------------------|
| 1. Triangular Plugs        | 6. Adapter Plate      |
| 2. Plug Screws             | 7. Adapter Gasket     |
| 3. Carburetor gasket       | 8. Air Intake Adapter |
| 4. Carburetor              | 9. Screws             |
| 5. Air Cleaner Base Gasket |                       |

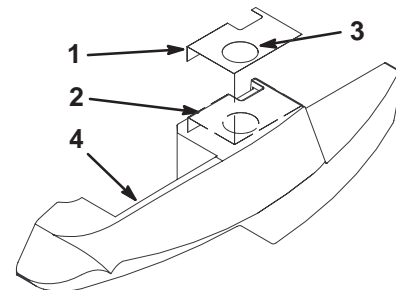
13. Place rag or tape over air intake adapter opening to prevent debris entering.

## Cutting Holes in Plastic Console

A 3" and 3-1/2" diameter hole saw is needed to drill into the left side plastic console.

**Note:** Templates 1 and 2 must be used to locate the correct location for holes. Templates are located in the back of this instruction sheet.

1. Locate and cut out templates 1 and 2 from the back of this instruction sheet.
- Note:** Do not cut out large circles in paper templates.
2. Take template number one and fold it across the fold line.
  3. Place template number one onto the top of the plastic console as shown in figure 6. Tape to plastic console.
  4. Using 3" diameter hole saw, cut a hole at the specified area in template (Fig. 6).



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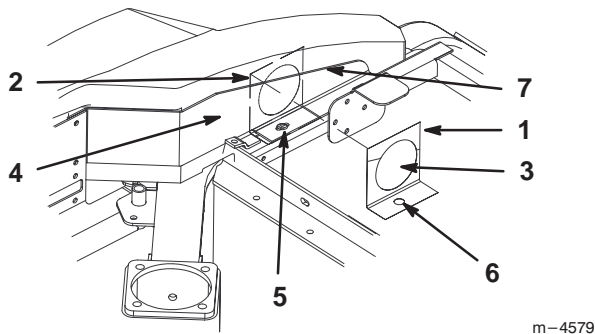
**Figure 6**

- |                                 |                               |
|---------------------------------|-------------------------------|
| 1. Template #1 (Folded)         | 3. 3" Diameter Hole to be cut |
| 2. Template Position on console | 4. Leftside console           |

5. Locate template number two and cut out small hole. Fold template at the specified fold lines.
6. Place small cut out hole onto bolt head and place the fold in the bend of metal support. (Fig. 7).
7. Align diagonal line on template with the edge of metal support. Tape template to plastic console and metal support (Fig. 7).

8. Mark center of 3-1/2" hole. (Fig. 7).
9. Remove bolt that was used when locating template position (Fig. 7).
10. Using 3-1/2" diameter hole saw, cut a hole at the specified area in template (Fig. 7).
11. Reinstall bolt. (Fig. 7).

**Note:** Part of hole will be cut through metal support. Remove any burrs from the metal support after hole is cut.



**Figure 7**

- |                                   |  |
|-----------------------------------|--|
| 1. Template #2 (Folded)           | 5. Bolt Head (Remove bolt after 3-1/2" hole location is marked.) |
| 2. Template Position on console   | 6. Cut out circle (Align onto bolt head)                         |
| 3. 3-1/2" Diameter Hole to be cut | 7. Edge of Metal Support   |
| 4. Bottom of Leftside console     |  |

**Note:** Figure 7 shows machine as if it were tipped on its side. Do not tip machine on its side.

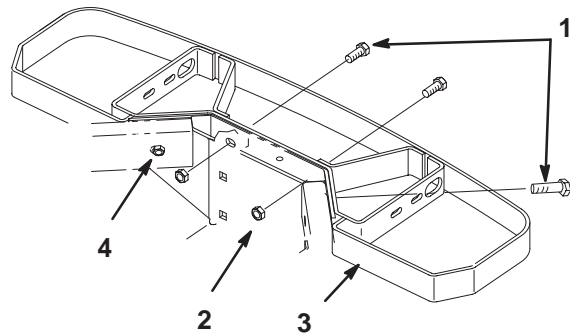
## Drilling Holes into Bumper

**Note:** Template 3 must be used to locate the proper location for holes. Template 3 is located in the back of this instruction sheet.

1. Locate and cut out template three from the back of this instruction sheet.

**Note:** Do not cut out circles in paper template.

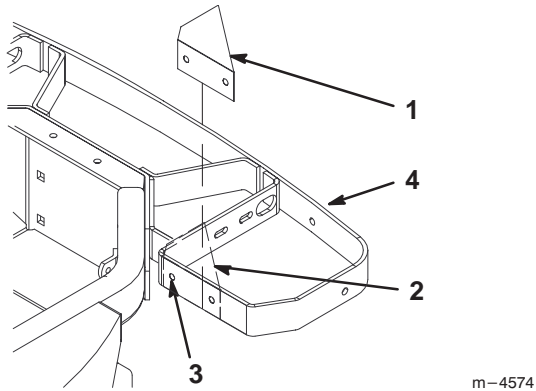
2. Take template number three and fold it across the fold line.
3. Place template number three onto the top of the rear bumper as shown in figure 9. Tape to bumper.
4. Remove the three bolts as shown in figure 8. Loosen the fourth bolt but do not remove.



**Figure 8**

- |          |                  |
|----------|------------------|
| 1. Bolts | 3. Bumper        |
| 2. Nuts  | 4. Bolt (Loosen) |

5. Rotate the leftside of bumper up to gain access to drill holes on front leftside of bumper (Fig. 9).
6. Drill two 11/32" holes onto the front of bumper (Fig. 9). Remove template.
7. Reinstall the bumper to machine frame.



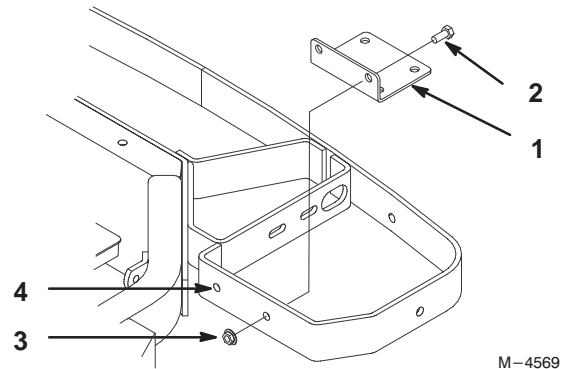
**Figure 9**

- |                                |  |
|--------------------------------|--|
| 1. Template #3 (Folded)        | 3. 11/32" Diameter Holes to be drilled |
| 2. Template Position on Bumper | 4. Leftside of Bumper                  |

## Installing Air Cleaner Bracket

1. Align holes in bracket with holes drilled in the left front of bumper.
2. Install 5/16" bolts into holes and tighten (Fig. 10).

**Note:** Install bolts with heads towards the rear of the machine.



**Figure 10**

- |                        |                  |
|------------------------|------------------|
| 1. Air Cleaner Bracket | 3. Nut           |
| 2. Bolt                | 4. Drilled Holes |

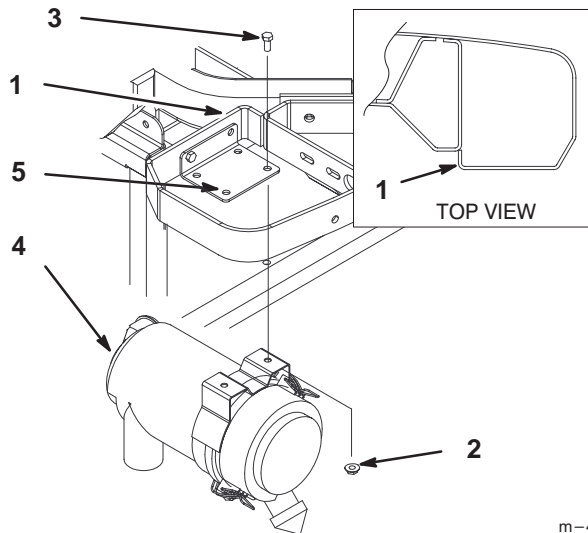
## Installing Air Cleaner

**IMPORTANT:** There are two types of bumpers. Figure 11 shows the extended bumper. Figure 12 shows the recessed bumper.

Refer to #1 in figures 11 and 12 to determine which type of bumper you have.

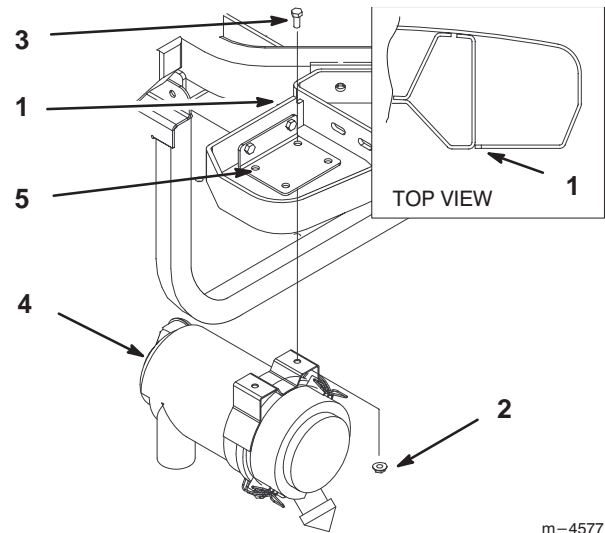
**IMPORTANT:** Ensure you install bolts in the correct holes in bracket.

1. Install bolts in the correct holes for which type of bumper you have. Install bolts with heads towards the top (Fig. 11 or 12).
2. Tighten bolts.



**Figure 11**

- |                    |                       |
|--------------------|-----------------------|
| 1. Extended Bumper | 4. Air Cleaner        |
| 2. Nut             | 5. Rear Bracket Holes |
| 3. Bolt            |                       |

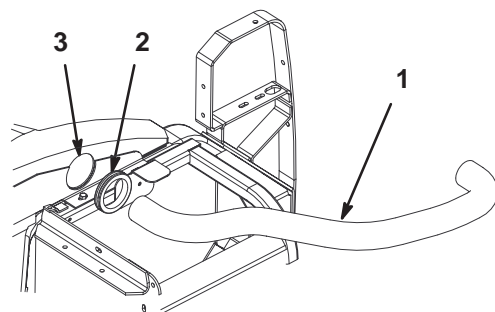


**Figure 12**

- |                        |                        |
|------------------------|------------------------|
| 1. Non-Extended Bumper | 4. Air Cleaner         |
| 2. Nut                 | 5. Front Bracket Holes |
| 3. Bolt                |                        |

## Installing Air Intake Hose

1. Install rubber grommet onto hose. (Fig. 13). Install grommet into console after hose is clamped down.
2. Locate and insert air intake hose into the bottom hole of plastic console. (Fig. 13).
3. Route hose through plastic console and into the hole cut in top surface.

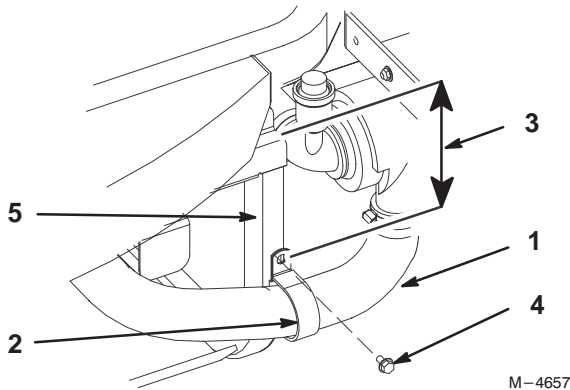


**Figure 13**

- |                    |  |
|--------------------|--|
| 1. Air Intake Hose | 3. Hole cut into bottom of plastic console |
| 2. Grommet         |  |



4. Locate position for R-clamp by measuring down 6" from top of tube and centered on tube. Mark center of hole in R-clamp (Fig. 14).
5. Drill a 9/32" hole into the tube.
6. Install R-clamp around air intake hose (Fig. 14).
7. Install screw into R-clamp and tube (Fig. 14).

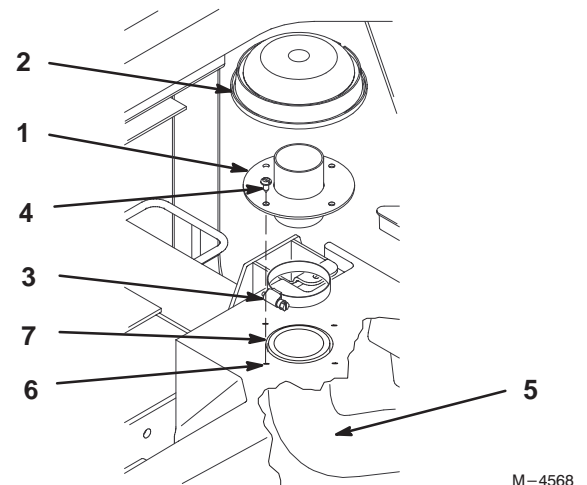


**Figure 14**

- |                    |          |
|--------------------|----------|
| 1. Air Intake Hose | 4. Screw |
| 2. R-Clamp         | 5. Tube  |
| 3. 6 inches        |          |

## Installing Flange Connector

1. Install a hose clamp onto end of air intake hose. Insert flange connector in to intake hose. Tighten hose clamp (Fig. 15).
2. Insert flange connector and hose into the top hole in plastic. Center flange connector into the top hole.
3. Using flange connector as a template, mark and drill 3/32" pilot holes into plastic console (Fig. 15).
4. Screw 5/16" x 3/4" (19 mm) screws into the flange connector and plastic console (Fig. 15).
5. Slide air intake hood onto installed flange connector.



**Figure 15**

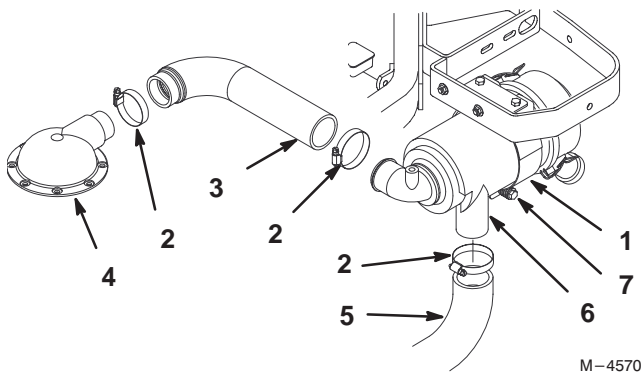
- |                     |                      |
|---------------------|----------------------|
| 1. Flange Connector | 4. Screw             |
| 2. Air Intake Hood  | 5. Hose              |
| 3. Hose Clamp       | 6. 3/32" Pilot Holes |

## Installing Hoses to Air Cleaner

1. Install hose clamps on to the ends of the two hoses.
2. Install the adapter hose and air intake hose onto the air cleaner canister and tighten the hose clamps (Fig. 16).

**Note:** Ensure that air inlet points straight down. Adjust by loosening bracket screw. Tighten bracket screw when adjustment is done.

3. Install the adapter hose onto the air intake adapter and tighten the hose clamp (Fig. 16).



**Figure 16**

- |                       |                  |
|-----------------------|------------------|
| 1. Air Cleaner        | 5. Console Hose  |
| 2. Hose Clamp         | 6. Air Inlet     |
| 3. Adapter Hose       | 7. Bracket Screw |
| 4. Air Intake Adapter |                  |

4. Install rubber grommet onto hose. (Fig. 13). Install grommet into console after hose is clamped down.

## Installing Filter Minder

1. Install the Filter Minder Kit to the air cleaner housing. Use instructions provided in that kit.

**IMPORTANT: Do not discard instructions. Save for future reference and use.**

## Using Filter Minder

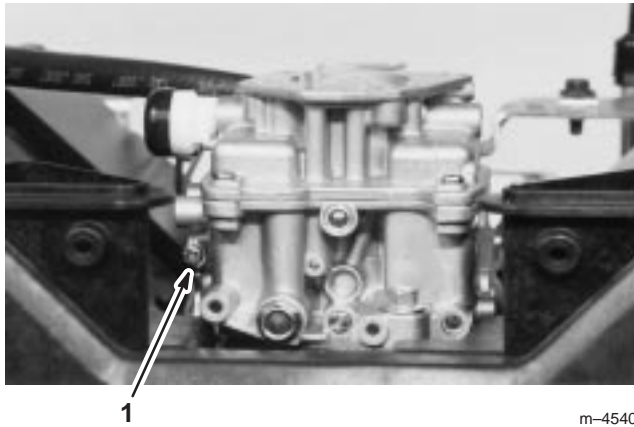
The plunger inside the gauge canister will rise as the air cleaner becomes dirty and restricted from use. As it approaches or reaches the “Change Filter” level, air cleaner maintenance is required.

1. Start by visually checking the condition of the paper element. If the element is visually dirty, replace the paper element. Do not attempt to clean it.
2. Reset the gauge by depressing the button in the bottom of the canister until the plunger returns to the lowest point.
3. Test run the engine and recheck the gauge. If the plunger remains in the lower ranges, normal operation can resume. If the plunger returns to the “Change Filter” level, the paper element is restricted and must be replaced, even though it may not appear to be dirty.
4. The gauge may be reset at any time, however it will return to the prior position if corrective filter servicing has not been performed.

## Test System

1. Reconnect the spark plug leads. Check the engine oil level.
2. Perform the final carburetor adjustments as follows.

**Note:** The new carburetor installed is a "fixed jet, emissions certified" carburetor designed to deliver the correct fuel-to-air mixture to the engine under all operating conditions. The fuel mixtures are set at the factory and cannot be adjusted.



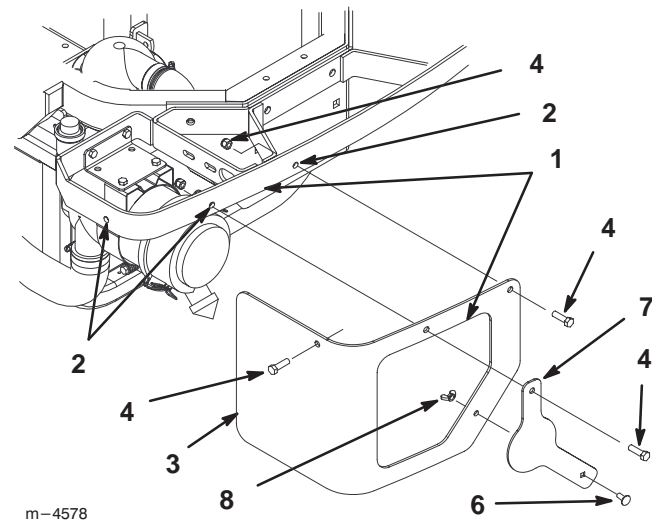
**Figure 17**

1. Low Idle Speed Adjusting Screw

3. Start the engine and check to be certain that oil pressure (20 psi or more) is present. Run the engine for 5–10 minutes to warm up. The engine must be warm before making final settings.
4. Place the throttle control into the "idle" or "slow" position. Turn the low idle speed adjusting screw in or out, to obtain a low idle speed of 1400 RPM ( $\pm 75$  RPM). Check the speed using a tachometer (Fig. 17).
5. Move the throttle control to the "Fast/Full-Throttle" position. Using a tachometer, check that the maximum engine speed does not exceed 3250 RPM ( $\pm 50$  RPM). Adjust if necessary.

## Installing Filter Guard

1. Hold guard up to the bumper so the bottom edge of hole in guard lines up with the bottom edge of bumper (Fig. 18). Clamp to bumper.
2. Using the guard as a template, drill three 11/32" holes into bumper (Fig. 18).
3. Install two 5/16" screws into outside holes (Fig. 18). Do not install bolt in center hole until guard plate is installed.
4. Install the guard plate using a 5/16" bolt in the center top hole and carriage bolt and wing nut in the bottom hole (Fig. 18).



**Figure 18**

- |                          |                  |
|--------------------------|------------------|
| 1. Align Bottom Edges    | 5. Nut           |
| 2. 11/32" Holes to drill | 6. Carriage Bolt |
| 3. Guard                 | 7. Guard Plate   |
| 4. Bolt                  | 8. Wing Nut      |

## Servicing the Air Cleaner

Primary Filter: Clean or replace every 200 operating hours.

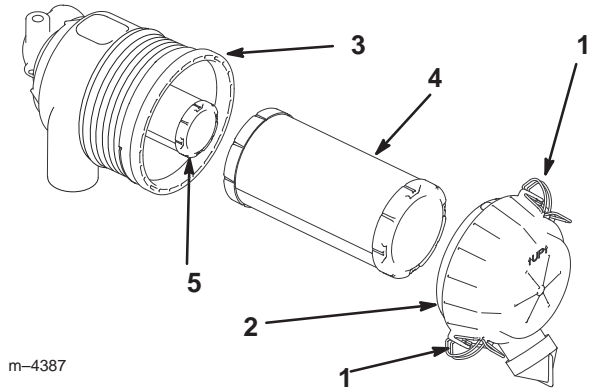
Safety Filter: Replace after every 600 operating hours.

**Note:** Service the air cleaner more frequently if operating conditions are extremely dusty or sandy.

### Removing the Filter

1. Disengage the power take off (PTO), set the parking brake, and turn the ignition key to "OFF" to stop the engine. Remove the key. Remove spark plug wire(s) and remove the key.
2. Release the latches on the air cleaner and pull the air cleaner cover off of the air cleaner body (Fig. 19).
3. Clean the inside of the air cleaner cover with compressed air.
4. Gently slide the primary filter out of the air cleaner body (Fig. 19). Avoid knocking the filter into the side of the body. Do not remove the safety filter, unless you intend to replace it as well.
5. Inspect the primary filter for damage by looking into the filter while shining a bright light on the outside of the filter. Holes in the filter will appear as bright spots. If the filter is damaged, discard it, otherwise clean it.

**IMPORTANT:** Never attempt to clean the safety filter. If the safety filter is dirty, then the primary filter is damaged and you should replace both filters.



m-4387

Figure 19

- |                      |                   |
|----------------------|-------------------|
| 1. Latches           | 4. Primary filter |
| 2. Air cleaner cover | 5. Safety filter  |
| 3. Air filter body   |                   |

### Cleaning the Primary Filter

Blow compressed air from the inside to the outside of the primary filter.

**IMPORTANT:** Do not exceed 100 psi and keep the hose at least 2 inches from the filter.

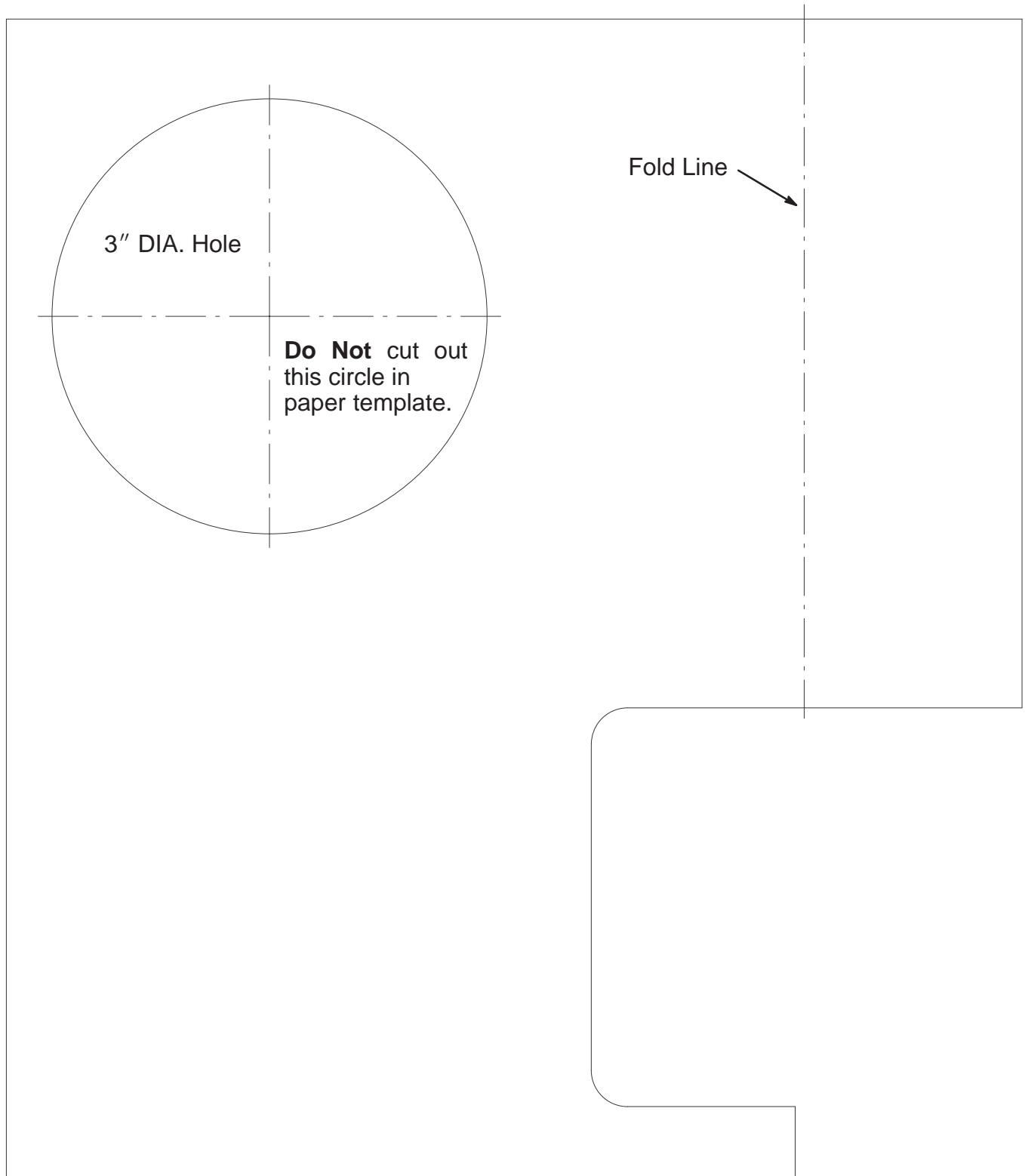
### Installing the Filters

1. If installing new filters, check each filter for shipping damage. Do not use a damaged filter.
2. If the safety filter is being replaced, carefully slide it into the filter body (Fig. 19).
3. Carefully slide the primary filter over the safety filter (Fig. 19). Ensure that it is fully seated by pushing on the outer rim of the filter while installing it.

**IMPORTANT:** Do not press on the soft inside area of the filter.

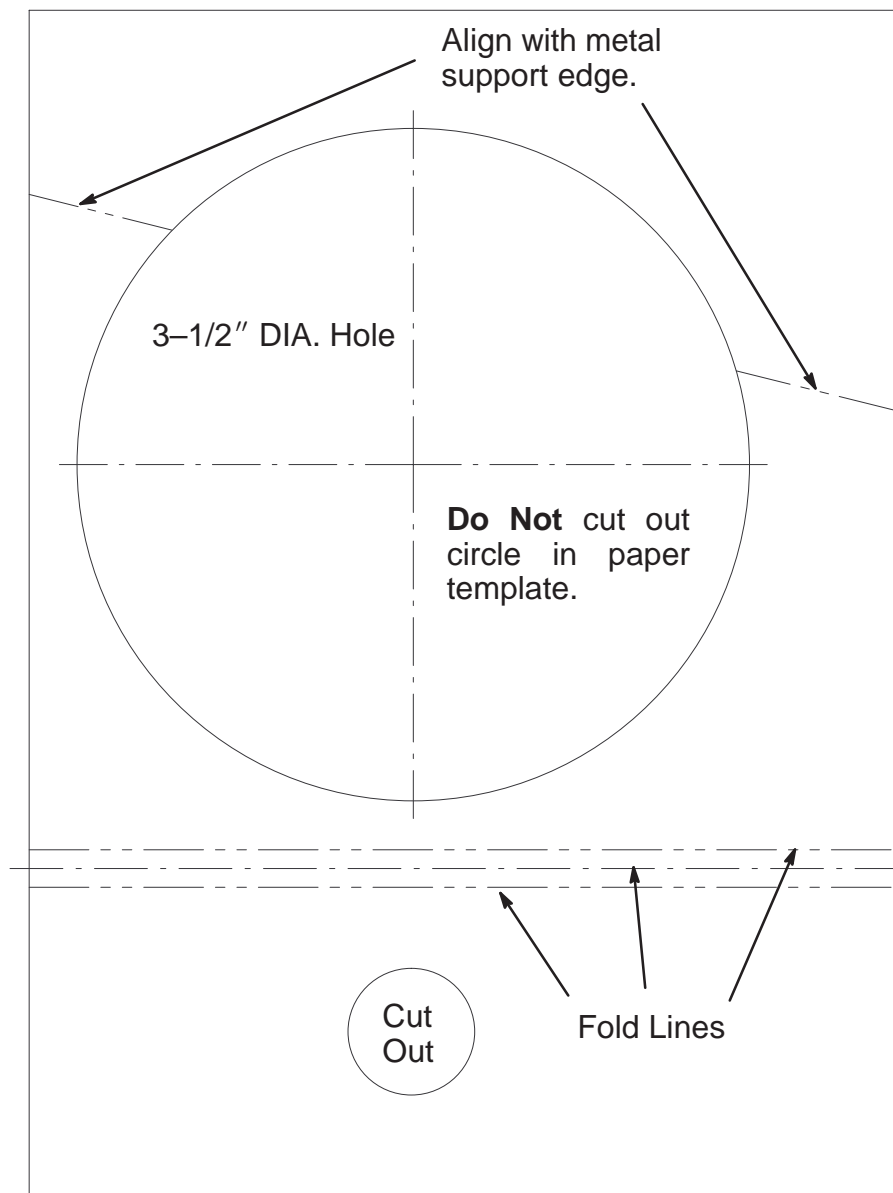
4. Install the air cleaner cover with the side indicated as UP facing up and secure the latches (Fig. 19).

## Template #1





## Template #2







## Template #3

