

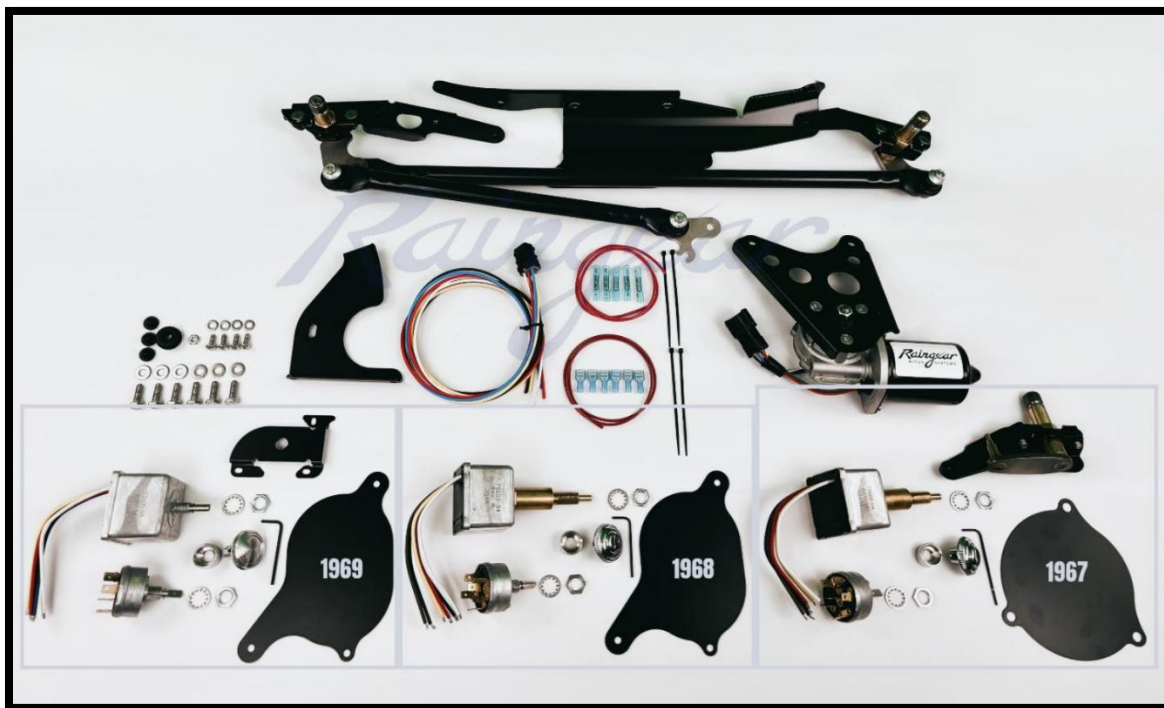
## Installation Instructions

### 1967-69 Camaro/Firebird, 1969 Trans Am, and 1968-74 Nova

\*These systems may also work on other X bodies\*

The Raingear 1967–69 Camaro/Firebird, 1969 Trans Am, and 1968–74 Nova Wiper System is engineered for both ease of installation and long-term reliability. Please review these instructions carefully before beginning your installation. Each system is designed and built with precision.

We periodically make improvements to our designs, so some components may appear slightly different from the photos shown. If you find yourself needing to modify a part or replace a part to complete the installation, something is likely incorrect. Please contact us at [Sales@RaingearWipers.com](mailto:Sales@RaingearWipers.com) for assistance.



**Figure 1**

**Figure 1:** Displays the components included in your purchased kit. The contents may vary depending on your vehicle's year, model, and switch option, as shown in the labeled boxes.

**Please Note:**

If you are using an aftermarket cowl panel, mock up the wiper system prior to paint.

We have received reports of some aftermarket cowl panels being slightly taller than stock, which can cause clearance issues and prevent the wiper arms from operating properly without rubbing against the cowl panel.

## Getting Started



**Important:** You will be working in an area of the vehicle that contains a high concentration of electrical wiring.

**Disconnect the battery before beginning installation.**

### **Remove the Original Wiper System**

- A.** Remove the wiper arms and blades. The arms and blades may be reused, but no other original components are compatible with the Raingear wiper system.
- B.** Remove the fresh air grille and cowl panel covering the air box located in front of the windshield. (See Fig. 2.)

#### **Figure 2:**

This shows the fresh air grille and cowl panel located in front of the windshield opening.

**Note:** In this photo, the OEM wiper assembly has already been removed.



- C.** Remove the OEM wiper motor from the firewall.
- D.** Remove the OEM wiper assembly from inside the air box.
- E.** Remove the stock wiper switch. The Raingear wiper system does not use any of the original windshield wiper wiring.

## Pre-Installation

- 1.** Drill a 5/8" diameter hole in the aft wall of the air box to route the wires from the switch to the motor. We recommend using a step drill with a shaft extension to reach the area under the cowl lip.

The Camaro/Firebird and Nova air boxes are slightly different, so locate the hole approximately 4"–6" inboard of the center of the driver-side pivot shaft opening, just under the cowl lip.

Position the hole as high as possible and verify that there is adequate clearance under the dash. (See Fig. 3.)

#### **Figure 3:**

Drill the wiring pass-through hole approximately 4"–6" inboard of the center of the driver-side pivot shaft opening (do not exceed 6").



- 2.** Install the enclosed rubber grommet into the drilled hole to protect the wires from chafing.

# Installation

## Installing the Drive Unit Assembly

**Step 1:** Familiarize yourself with the orientation of the parts that make up the Drive Unit Assembly before inserting it into the air box. (See Fig. 4.)

Pre-fit all fasteners. You may need to clear any powder coat from the top edge of the hole to ensure proper fit.

**Figure 4:**

Insert the passenger-side Pivot Shaft Assembly into the air box at the opening in the cowl forward of the driver's position.



**Step 2:** Insert the Drive Unit Assembly into the air box by sliding the passenger-side Pivot Shaft Assembly through the opening in the cowl forward of the driver's position. Once fully seated, the knurls of the Pivot Shafts should be oriented mostly upward and aft. (See Fig. 5.)

**Figure 5:**

The entire Drive Unit Assembly should have the tips of the Pivot Shafts pointing upward and aft. In this photo, the Drive Unit Assembly is resting on the bottom of the air box, with the Pivot Shafts positioned to the left of their respective openings in the cowl.



### Helpful Tips

- Place a heavy plastic bag over the passenger-side Pivot Shaft Assembly before inserting it into the air box to help prevent surface scratches.
- If the driver-side plastic air intake duct (See Fig. 6) interferes with the driver side Pivot Shaft Assembly, remove it from inside the car by taking out the three screws that secure it. (See Fig. 7.) Reinstall the duct after the Pivot Shaft Assembly is in place.

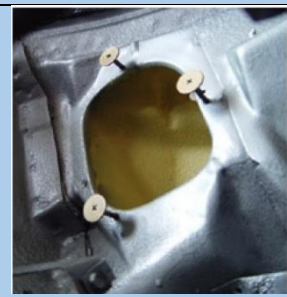
**Figure 6:**

If the driver-side plastic air intake duct is interfering with the driver-side Pivot Shaft Assembly, remove the duct during the Wiper System installation



**Figure 7:**

Shows the three screws securing the plastic air intake duct.



**Step 3:** Raise the Pivot Shafts into the pivot shaft openings in the cowl. Align the mounting holes of each Pivot Shaft Assembly with the corresponding countersunk holes on both sides of the pivot shaft openings. Secure each side with two 1/4" countersunk screws, but do not fully tighten—leave them about one turn shy of tight. (See Fig 8.)

**Figure 8:**

Secure each side with two 1/4" countersunk screws, but do not fully tighten—leave them about one turn shy of tight.



**Step 4:** Insert the Bridge into the air box, positioning it under the Pivot Post Link. (See Fig 9.)

**Figure 9:**

Insert the Bridge (B) into the airbox.



**Step 5:** Attach the Bridge to the Pivot Shaft Assemblies, starting with the passenger side. Use two 1/4-28 bolts and flat washers to secure the Bridge to the passenger-side Pivot Shaft Assembly. Then move to the driver side and secure the Pivot Shaft Assembly to the Bridge with a single 1/4-28 bolt.

**Finger-tight to start:** Do not fully tighten the bolts until all three are in place

**Step 6:** Tighten the Bridge screws, then tighten the right and left Pivot Shaft Assembly bolts. (See. Fig. 10 & 11)

**Figure 10:**

After attaching the Bridge to the Pivot Shaft Assemblies and tightening the Bridge screws, tighten the right Pivot Shaft Assembly bolts.



**Figure 11:**

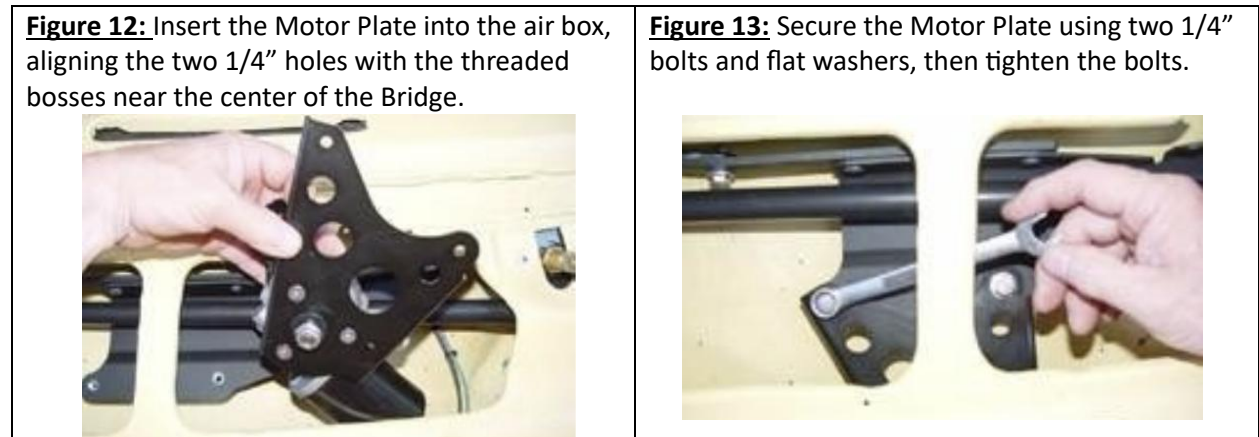
Tighten the left Pivot Shaft Assembly bolts. Then tighten the 4, Countersunk, 1/4" Phillips head bolts in the cowl.



**Step 7:** Tighten the four 1/4" countersunk Phillips head bolts in the cowl.

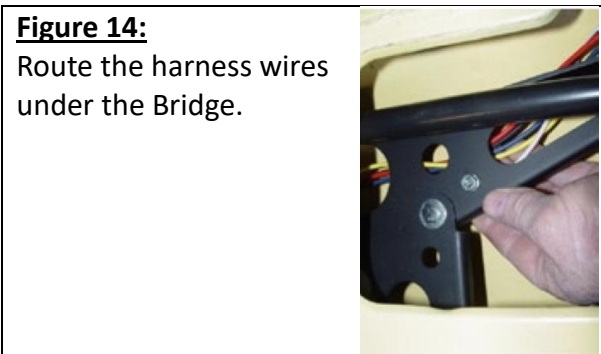
**Step 8:** Connect the **black** plastic connector on the Wire Harness to the connector on the motor.

**Step 9:** Place a heavy plastic bag over the Motor/Motor Plate to help prevent scratching. Insert the Motor Plate into the air box, aligning the two 1/4" holes with the threaded bosses near the center of the Bridge. Secure with two 1/4" bolts and flat washers, then tighten. (See Fig. 12 & 13)



**Tip:** Push the long Pivot Post Link toward the passenger side to create room for installing the motor.

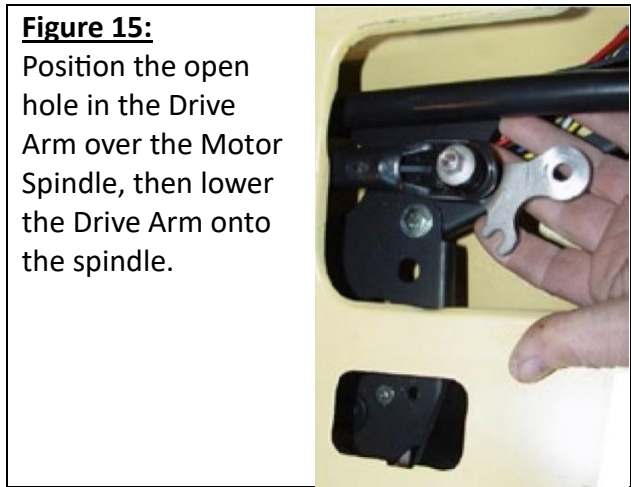
**Step 10:** Route the harness wires under the Bridge. This can be tedious, so it may be easier to route one wire at a time. Secure the wires near the middle of the Bridge using a nylon wire loop with a 10-32 x 1/2" screw and nut. Continue routing the wires through the grommet and into the vehicle interior. (See Fig. 14.)



### Installing the Drive Arm onto the Motor Spindle

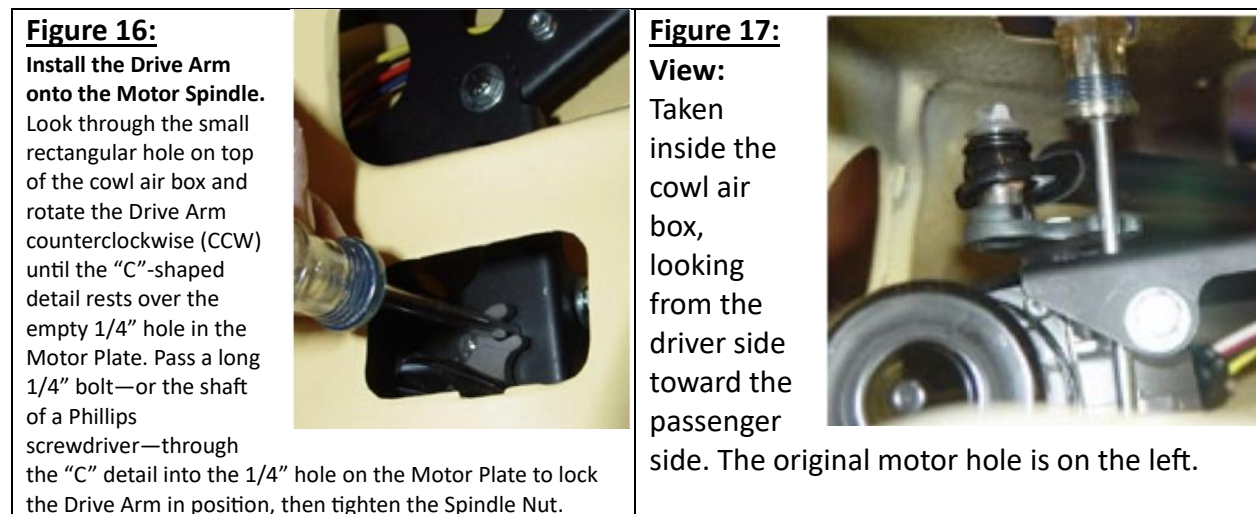
**Step 11:** Remove the nut from the Motor Spindle. Push the Pivot Shaft Links to the left and position the Drive Arm as shown in Fig. 15. Align the open hole in the Drive Arm over the Motor

Spindle, lower the Drive Arm onto the spindle, and replace the Spindle Nut—leaving it loose.  
**Do not tighten until the next step is completed.**



**Step 12:** Look through the small 1" × 2" rectangular hole on top of the cowl and locate the "C"-shaped detail on the Drive Arm. Rotate the Drive Arm counterclockwise (CCW) until the "C" detail aligns over an empty 1/4" hole in the Motor Plate. Note: This 1/4" hole on the Motor Plate is called the "Park Position Locator." Proper alignment of the "C" detail on the Drive Arm with the Park Position Locator is essential for correctly setting the Wiper System's "Park position."

**Step 13: To lock the Drive Arm onto the Motor Spindle:** Pass a long 1/4" bolt (or the shaft of a Phillips screwdriver) through the "C"-shaped detail on the Drive Arm and into the 1/4" hole on the Motor Plate. (See Figs. 16 & 17)



**Note:** Always use this procedure when loosening or tightening the Drive Arm. This prevents the Drive Arm from rotating the motor out of its proper **Park Position**. With the Drive Arm locked in

position, insert the open end of a 13mm wrench into the original motor hole in the firewall and tighten the Spindle Nut. (See Fig. 18)

**Tip:** If the motor hole has been welded closed to clean the firewall, you can also access the Spindle Nut through the top of the cowl air box.

**Figure 18:**

With the Drive Arm locked in position using a bolt or screwdriver, insert the open end of a 13mm wrench into the original motor hole in the firewall and tighten the Spindle Nut.



## Installing the Motor Brace

**Step 14:** Insert the three rubber bumpers into the Motor Brace flange holes. Place the Motor Brace into the air box, ensuring the crescent-shaped cutout fits over the body of the motor. Two rubber bumpers should rest on the floor of the air box, and one on top.

Raise the Motor Plate with one hand, and with the other hand, align the 1/4" hole in the center of the Motor Brace with the 1/4" threaded boss on the Motor Plate. Secure with a 1/4-28 bolt and flat washer. (See Figs. 19, 20, & 21)

**Figure 19:**

Insert the three rubber bumpers into the Motor Brace flange holes.



**Figure 20:**

Insert the Motor Brace into the air box, ensuring the crescent-shaped cutout fits over the body of the motor. Raise the Motor Plate with one hand, and with the other, align the 1/4" hole in the center of the Motor Brace with the 1/4" threaded boss on the Motor Plate. Secure with a 1/4-28 bolt and flat washer.



**Figure 21:**

When the crescent-shaped cutout in the Motor Brace is positioned around the motor, two rubber bumpers should rest on the floor of the air box, and one should sit on top.



**Step 15:** Plug the motor hole in the firewall with the Cover Plate. Secure it using three 10-24 screws and flat washers. The Cover Plate is black powder-coated. (See Fig. 22)

**Figure 22:**

**Note:** A Cover Plate is provided to plug the motor hole in the firewall if you choose not to weld it closed.



### **Step 16: Prepping the Switch for Installation:**

New switches often have a very tight spring to hold them in their detent positions. Before installing the switch, we recommend "working" it several times to ensure it moves easily from position to position. Grip the switch shaft with pliers (not the knob) to get enough leverage to turn the switch. This step is especially important for installations using the plastic switch knob.

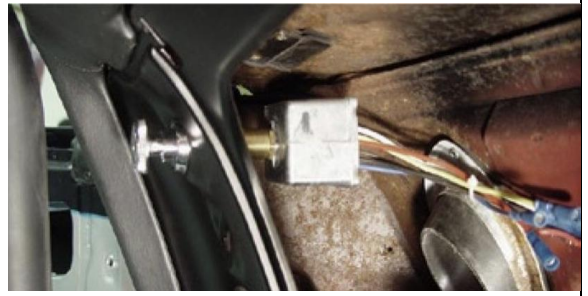
### **Step 17: Switch Installation Guide:**

- **Standard Switch:** Simply replace the wiper switch with the one provided in the kit.
- **Delay Switches:** These switches are supplied with a brass 3-piece extension to clear the rear of the dash. Position the switch on the Rotary Switch Adapter Plate (or in the dash) as desired, then file a flat on the bottom of the shaft extension for the setscrew in the

switch knob. Ensure the inner switch nut is run out on the shaft so that when the outer chrome nut is tightened, no threads project beyond the inner surface of the nut. (See Fig. 23)

**Figure 23:**

**This photo shows** the 1967–68 Delay Switch installed in the dash. The delay switch for this application includes a brass 3-piece extension to clear the rear of the dash.



- **1969 Camaro and 1969–74 Nova:** These models have a molded plastic dash insert. Use the supplied Rotary Switch Adapter Plate, which screws onto the back of the dash in the same location as the original slide switch. This allows replacement of the factory switch with the kit switch. (See Figs, 24–28)

**Figure 24:**




We supply a Rotary Switch Adapter Plate that mounts to the backside of the dash in the same location as the original slide switch.



**Figure 25:**

Attach the switch to the Switch Adapter Plate before installing it into the dash.





<p><b>Figure 26:</b> This photo shows the 1969–74 Delay Switch and installation hardware. Your switch may look slightly different depending on the year of your car and the type of switch used. We currently do not offer a switch adapter for the 1969 Firebird; an adapter will need to be fabricated for that application.</p>	
<p><b>Figure 27:</b> Inside-the-dash view showing installation of a 1969 and later Delay Switch.</p>	
<p><b>Figure 28:</b> This photo shows a 1969 and later switch installed using the Rotary Switch Adapter Plate. The switch nut is in place, but the knob has not yet been installed.</p>	

- **1969 Firebird:** This model is standalone; an adapter must be fabricated to install the kit switch.

**Wiring**

Follow the wiring diagram supplied with your switch when wiring the system.

 <p><b>2 Speed</b></p>	 <p><b>2 Speed with Delay</b></p>
---	---

<https://raingearwipers.com/installation-instructions>

## Testing



**Before** installing the Wiper Arms, you **must** test the system to ensure it functions properly.

**Step 18:** Ensure you have a fully charged 12-volt battery to test the system. A battery charger will not work with the delay wiper system, and a battery with less than 11.5 volts will not operate the system properly.

**Step 19:** Test the wiper park position by wrapping tape around the knurled heads of both Pivot Shafts, leaving approximately 6" flaps to act as simulated wiper arms.

**Step 20:** Turn the Wiper Switch on, then off to ensure the arms park in the correct position. The tape flaps should stop at the end of their sweep, just as the direction reverses.

- If a flap stops somewhere in the middle of the sweep, do not turn the system off using the ignition switch or by disconnecting the battery. Instead, turn it off with the Wiper Switch.
- Once turned off correctly, inspect the Drive Unit's "park position" alignment. (IF incorrect, Return to steps 12 and 13.)
- If the alignment appears correct but the issue persists, something may be wrong with the installation. Email us before installing the Wiper Arms and Blades.

## Arm and Blade Installation

**With the wiper turned off** using the switch so the system is in the park position, install the wiper arms and blades where they should rest when parked.

**Note:** The original GM knurls were die-cast with a taper at the top, whereas ours are straight. Some arms may be difficult to start and seat. Make absolutely certain the arm is not cocked against the knurl, or it will be difficult to install. Some arms may only tighten about 3/4 of the way down the knurl.

**Tip:** Lubricate the knurls before installing the arms. Use a plastic-faced hammer to gently tap the arms securely onto the knurls if necessary.

**Thank you for choosing Raingear  
Wiper Systems. We look forward to  
assisting you with your next project!**