



33210

UNDERCARRIAGE KIT

Mitsubishi FG

2005 - 11

Installation Instructions

⚠ CAUTION

Read this document before installing the snowplow.

⚠ CAUTION

See your BLIZZARD® outlet/Web site for specific vehicle application recommendations before installation. The Undercarriage Selection Guide has specific vehicle and snowplow requirements.

SAFETY

SAFETY DEFINITIONS

⚠ WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious personal injury.

⚠ CAUTION

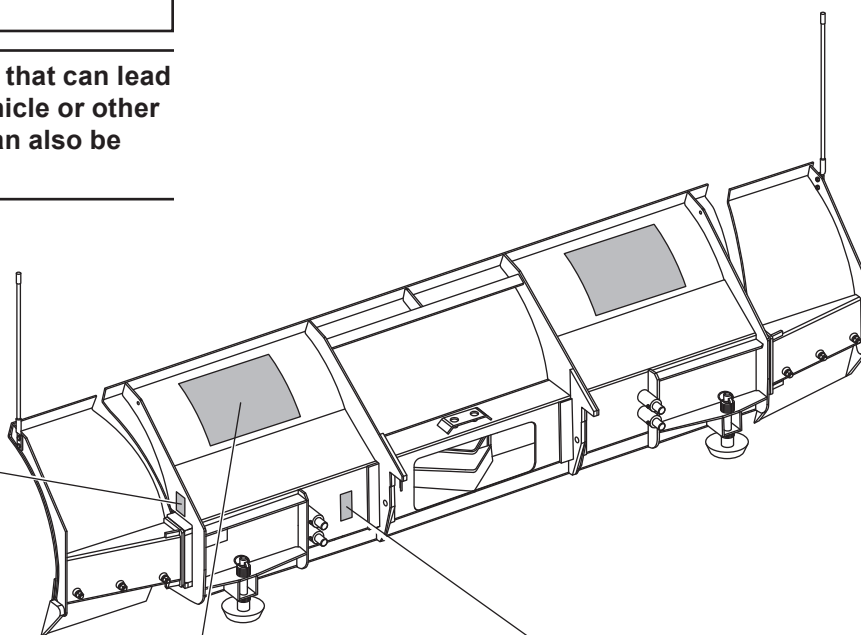
Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE: Indicates a situation or action that can lead to damage to your snowplow and vehicle or other property. Other useful information can also be described.

WARNING/CAUTION & INSTRUCTION LABELS

Become familiar with and inform users about the warning and instruction labels on the back of the blade.

NOTE: If labels are missing or cannot be read, see your sales outlet.



POWER PLOW™ & SPEEDWING™ Blades Only (both sides)



ATTACH	⚠ WARNING Keep fingers away from snowplow and truck attachment points. POWER HITCH™ 2 arm raises behind undercarriage pushbeam.	DETACH
<ol style="list-style-type: none"> Slowly drive vehicle forward to engage mount adapter into A-frame. Move power switch to center or "OFF" position. Plug in electrical harnesses. Push and hold power switch RIGHT and push UP and hold armblade operation switch. Arm will engage mount adapter and pull snowplow toward vehicle. Rotate and release hitch pin. Hitch pin is fully engaged when pin handle is against the pin guide plate. Repeat Step 5 on passenger's side. Rotate and release hitch pin. Hitch pin is fully engaged when pin handle is against the pin guide plate. While holding power switch RIGHT, push DOWN and hold armblade operation switch. Arm will disengage mount adapter to relieve tension on the stand. Pull stand handle up. Stand will lift off ground. Put stand pin out. Rotate stand up until stand pin seats into upper hole. Pin must lock into upper A-frame hole. Repeat Step 8 on passenger's side. Pull stand handle up. Stand will lift off ground. Put stand pin out. Rotate stand up until stand pin seats into upper hole. Pin must lock into upper A-frame hole. Move power switch to left or "Plowing" position. 		<ol style="list-style-type: none"> Lower snowplow onto ground with blade straight. Turn snowplow control in cab OFF. Move power switch to center or "OFF" position. While holding the power switch RIGHT, push DOWN and hold the armblade operation switch. Arm will disengage mount adapter to relieve tension on the stand. Pull stand pin out. Rotate stand down until stand pin seats into lower A-frame hole. Push down on top of shoe. Shoe will be on the ground. Repeat Step 4 on passenger's side. Pull stand pin out. Rotate stand down until stand pin seats into upper A-frame hole. Push down on top of shoe. Shoe will be on the ground. Push and hold power switch RIGHT and push UP the armblade operation switch. Arm will engage mount adapter and pull snowplow lightly to vehicle. Rotate and pull hitch pin. Rotate hitch pin into retracted position. Repeat Step 7 on passenger's side. Rotate and pull hitch pin. Rotate hitch pin into retracted position. While holding power switch RIGHT, push DOWN and hold armblade operation switch to fully lower arm. Unplug electrical harnesses.
<p>POWER HITCH 2</p> <p>Read Owner's Manual for complete instructions.</p> <p>U.S. patents 5,420,450; 5,638,616; 5,999,007; 6,178,669; 6,253,470; 6,276,076; 6,393,737; 6,408,549; 6,442,199; 6,442,877; 6,615,513; 7,134,227; 7,400,058; 7,430,921; 7,574,716; CAN patents 2,400,425; 2,184,922; 2,223,783; 2,250,508; 2,358,145; 2,389,554; 2,529,533; and other patents pending.</p> <p>BLIZZARD</p>		

SAFETY

SAFETY PRECAUTIONS

Improper installation and operation could cause personal injury and/or equipment and property damage. Read and understand labels and the Owner's Manual before installing, operating or making adjustments.

⚠ WARNING

Lower blade when vehicle is parked. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this could result in serious personal injury.

⚠ WARNING

The driver shall keep bystanders clear of the blade when it is being raised, lowered or angled. Do not stand between the vehicle and the blade or within 8 feet of a moving blade. A moving or falling blade could cause personal injury.

⚠ WARNING

Keep hands and feet clear of the blade and A-frame when mounting or removing the snowplow. Moving or falling assemblies could cause personal injury.

⚠ WARNING

Do not exceed GVWR or GAWR including the blade and ballast. The rating label is found on the driver-side vehicle door cornerpost.

⚠ WARNING

To prevent accidental movement of the blade, always turn the control OFF whenever the snowplow is not in use. The power indicator light will turn OFF.

⚠ WARNING

Remove blade assembly before placing vehicle on hoist.

⚠ CAUTION

Refer to the Undercarriage Selection Guide for minimum vehicle recommendations and ballast requirements.

PERSONAL SAFETY

- Remove ignition key and put the vehicle in park or in gear to prevent others from starting the vehicle during installation or service.
- Wear only snug-fitting clothing while working on your vehicle or snowplow.
- Do not wear jewelry or a necktie, and secure long hair.
- Wear safety goggles to protect your eyes from battery acid, gasoline, dirt and dust.
- Avoid touching hot surfaces such as the engine, radiator, hoses and exhaust pipes.
- Always have a fire extinguisher rated BC handy, for flammable liquids and electrical fires.

FIRE AND EXPLOSION

⚠ WARNING

Gasoline is highly flammable and gasoline vapor is explosive. Never smoke while working on vehicle. Keep all open flames away from gasoline tank and lines. Wipe up any spilled gasoline immediately.

Be careful when using gasoline. Do not use gasoline to clean parts. Store only in approved containers away from sources of heat or flame.

CELL PHONES

A driver's first responsibility is the safe operation of the vehicle. The most important thing you can do to prevent a crash is to avoid distractions and pay attention to the road. Wait until it is safe to operate Mobile Communication Equipment such as cell phones, text messaging devices, pagers or two-way radios.

VENTILATION

⚠ WARNING

Vehicle exhaust contains lethal fumes. Breathing these fumes, even in low concentrations, can cause death. Never operate a vehicle in an enclosed area without venting exhaust to the outside.

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TORQUE SPECIFICATIONS

NOISE

Airborne noise emission during use is below 70 dB(A) for the snowplow operator.

VIBRATION

Operating snowplow vibration does not exceed 2.5 m/s² to the hand-arm or 0.5 m/s² to the whole body.

TORQUE CHART

⚠ CAUTION

Read instructions before assembling. Fasteners should be finger tight until instructed to tighten according to the torque chart. Use standard methods and practices when attaching snowplow including proper personal protective safety equipment.



Grade Identification for J429–Grade 5 Bolt



Grade Identification for J429–Grade 8 Bolt

SAE J429 Grade 5 Torque Values				SAE J429 Grade 8 Torque Values			
Nominal Thread Size	Clamp Loads (lb)	Tightening Torque		Nominal Thread Size	Clamp Loads (lb)	Tightening Torque	
		"Lubricated"	"Dry"			"Lubricated"	"Dry"
1/4-20	2,000	6 ft-lb	8 ft-lb	1/4-20	2,850	9 ft-lb	12 ft-lb
5/16-18	3,350	13 ft-lb	18 ft-lb	5/16-18	4,700	18 ft-lb	25 ft-lb
3/8-16	4,950	23 ft-lb	31 ft-lb	3/8-16	6,950	32 ft-lb	44 ft-lb
7/16-14	6,800	37 ft-lb	50 ft-lb	7/16-14	9,600	53 ft-lb	70 ft-lb
1/2-13	9,050	57 ft-lb	75 ft-lb	1/2-13	12,800	80 ft-lb	107 ft-lb
9/16-12	11,600	82 ft-lb	109 ft-lb	9/16-12	16,400	115 ft-lb	154 ft-lb
5/8-11	14,500	113 ft-lb	151 ft-lb	5/8-11	20,300	159 ft-lb	211 ft-lb
3/4-10	21,300	200 ft-lb	266 ft-lb	3/4-10	30,100	282 ft-lb	376 ft-lb
7/8-9	29,435	321 ft-lb	430 ft-lb	7/8-9	41,550	454 ft-lb	606 ft-lb
1-8	38,600	482 ft-lb	640 ft-lb	1-8	54,540	680 ft-lb	900 ft-lb



Grade Identification for Metric–Grade 8.8 Bolt



Grade Identification for Metric–Grade 10.9 Bolt

Metric Class 8.8 Torque Values				Metric Class 10.9 Torque Values			
Diameter (mm)	Clamp Loads (lb)	Tightening Torque		Diameter (mm)	Clamp Loads (lb)	Tightening Torque	
		"Lubricated"	"Dry"			"Lubricated"	"Dry"
5	1,389	3 ft-lb	5 ft-lb	5	1,987	5 ft-lb	7 ft-lb
6	1,965	6 ft-lb	8 ft-lb	6	2,812	8 ft-lb	11 ft-lb
7	2,826	10 ft-lb	13 ft-lb	7	4,044	14 ft-lb	19 ft-lb
8	3,579	14 ft-lb	19 ft-lb	8	5,121	20 ft-lb	27 ft-lb
10	5,672	28 ft-lb	37 ft-lb	10	8,116	40 ft-lb	53 ft-lb
12	8,243	49 ft-lb	65 ft-lb	12	11,796	70 ft-lb	92 ft-lb
14	11,246	77 ft-lb	103 ft-lb	14	16,092	111 ft-lb	148 ft-lb
16	15,882	125 ft-lb	167 ft-lb	16	21,970	173 ft-lb	231 ft-lb
18	19,423	172 ft-lb	229 ft-lb	18	26,868	238 ft-lb	317 ft-lb
20	24,784	244 ft-lb	325 ft-lb	20	34,284	338 ft-lb	450 ft-lb

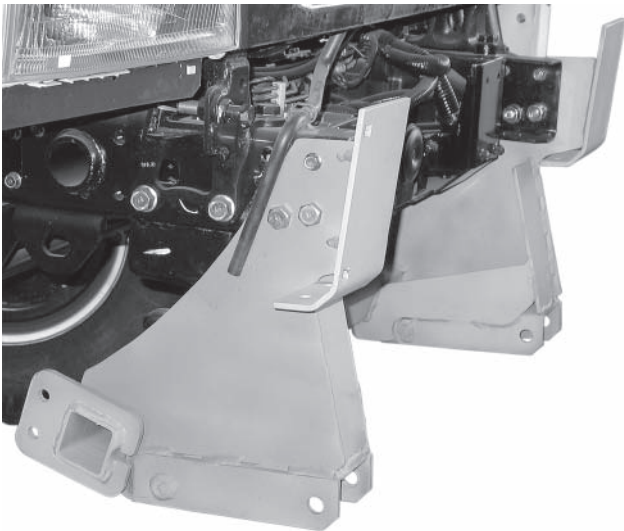
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UNDERCARRIAGE INSTALLATION

INSTALLATION INSTRUCTIONS

NOTE: For easier assembly and installation, the vehicle and all snowplow components should be on a smooth, level, hard surface, such as concrete.

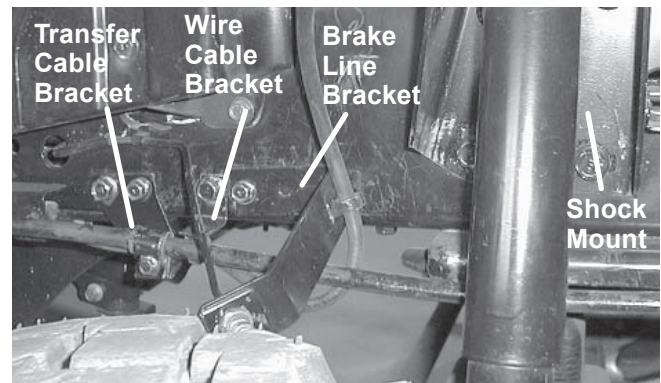
Main Mount

1. Remove the front bumper, then remove the bumper brackets from the frame rails. Retain the fasteners.
2. Position the main mount on the frame rails, aligning the bumper bracket holes with the mount holes. Reuse the bumper bracket fasteners to attach the mount to the frame rails, and hand tighten.



Driver-Side Thrust Arm & Brackets

1. On the driver's side, carefully remove the fasteners attaching the brake line bracket, transfer cable bracket and wire cable bracket to the frame rail. Completely remove the bracket from the transfer cable. Retain all fasteners.

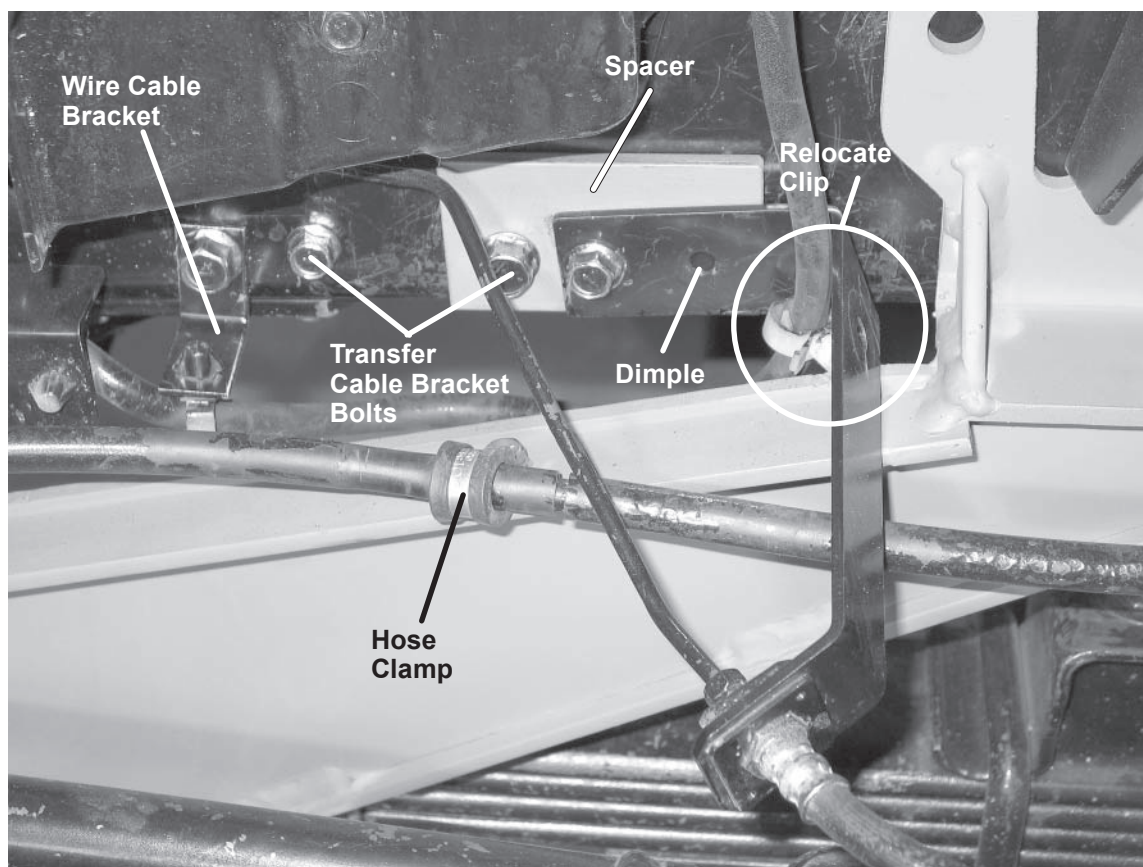


2. Remove and retain the two lower shock mount fasteners.
3. Position the thrust arm between the steering arm and leaf spring, and align the holes on the shock mount with the holes on the thrust arm. Use two M12 x 30 mm cap screws and lock washers to attach the thrust arm to the shock mount, and hand tighten.
4. Align the pair of holes in the main mount with the holes in the thrust arm, and fasten with 1/2" x 1-1/2" cap screws and locknuts. Hand tighten.

NOTE: The thrust arms should be installed on the outside of the main mount.

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UNDERCARRIAGE INSTALLATION

5. Place a spacer between the frame and the brake line bracket. Reattach the brake line bracket reusing the original fastener and inserting it through the middle hole in the spacer. Position the bracket so the dimple is locked into the small rear hole of the spacer, and hand tighten. Relocate hose clip as shown.
6. Insert the **larger transfer cable bracket bolt** through the front hole in the spacer and into the frame, and hand tighten.
7. Reattach the wire cable bracket to the frame using the forward-most transfer cable bracket bolt hole. Reinstall the smaller transfer cable bracket bolt into the remaining hole in the frame for storage.
8. Attach the supplied #10 hose clamp to the transfer cable, then fasten the clamp to the thrust arm using the provided 1/4" cap screw and locknut.

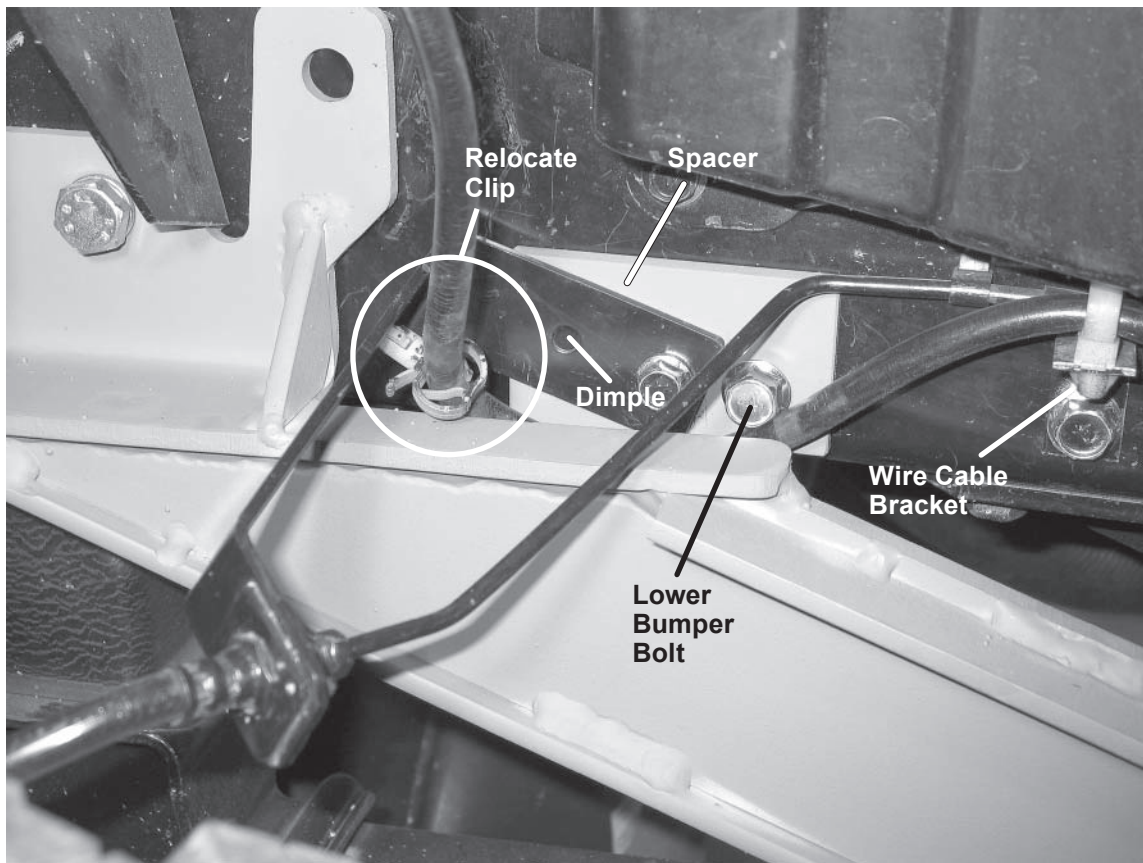


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UNDERCARRIAGE INSTALLATION

Passenger-Side Thrust Arm & Brackets

1. On the passenger's side, carefully remove the fasteners attaching the brake line bracket and wire cable bracket to the frame rail, as well as the two lower shock mount fasteners. Retain all fasteners.
2. Place a spacer between the frame rail and the brake line bracket. Reattach the brake line bracket reusing the original fastener and inserting it through the middle hole in the spacer. Position the bracket so that the dimple is locked into the small rear hole of the spacer, and hand tighten. Relocate hose clip as shown.
3. Insert one of the lower bumper bolts through the front hole in the spacer and into the frame, then hand tighten.
4. Reattach the wire cable bracket to the frame as shown below.
5. Align the holes in the thrust arm with the holes on the shock mount, and use two M12 x 30 mm cap screws and lock washers to attach the thrust arm to the shock mount. Hand tighten.
6. Align the pair of holes in the main mount with the holes in the thrust arm, and fasten with 1/2" x 1-1/2" cap screws and locknuts. Hand tighten.

NOTE: The thrust arms should be installed on the outside of the main mount.



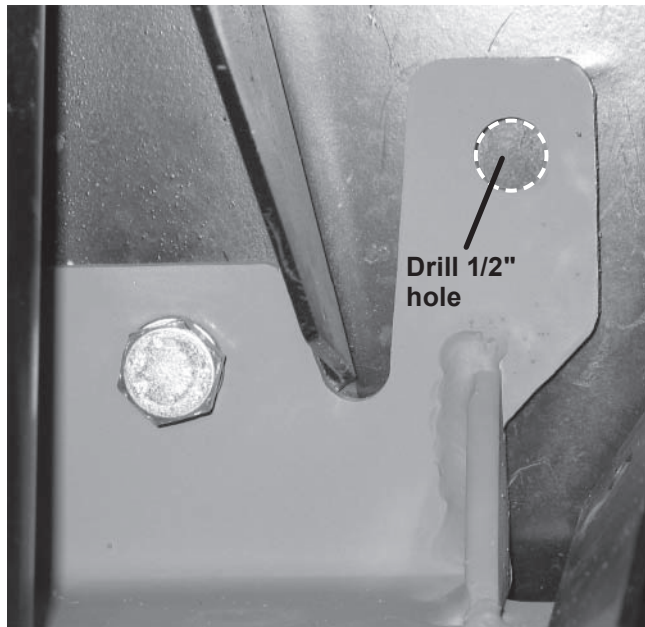
Final Assembly

1. Push the main mount tight up against the frame, and, according to the torque chart, fully tighten the six fasteners securing the main mount to the frame rails.
2. Fully tighten the driver-side shock mount fasteners, followed by the two fasteners securing the thrust arm to the main mount, according to the torque chart. Repeat on the passenger's side.
3. On both sides of the vehicle, fully tighten the brake line bracket, wire cable bracket and transfer cable bracket fasteners.

⚠ CAUTION

Use caution not to pinch, cut, or drill through any wires or hoses running along the frame rails.

4. Using the holes on the thrust arms as guides, drill a 1/2" hole through each side of the frame. Place a 1/2" flat washer between the frame and the thrust arm, then insert a 1/2" x 1-1/2" cap screw through the hole, washer and frame. Attach a 1/2" locknut, and fully tighten. Repeat on the opposite side.



5. Reattach the bumper using the original carriage bolts on the front and the provided 1/2" x 1" cap screws, washers and locknuts on the lower portion of the bumper. Fully tighten.

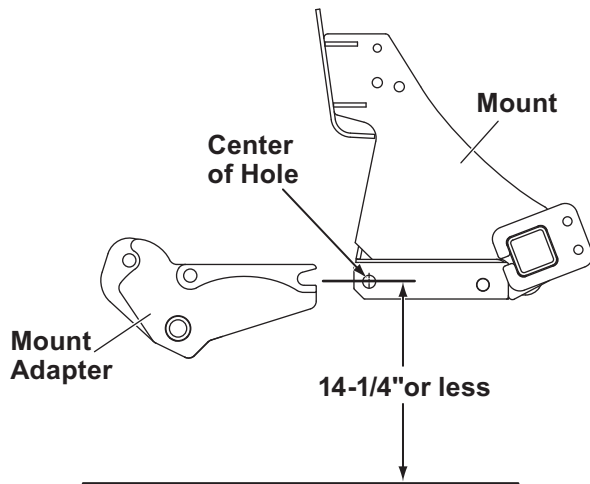
MOUNT ADAPTER INSTALLATION

MOUNT ADAPTER MEASUREMENT

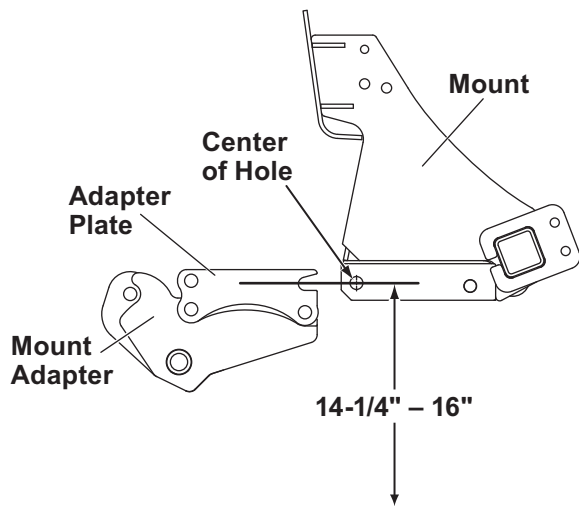
With the vehicle on level ground, measure from the ground to the center of the hole on the U-bracket side plate on the mount.

The height of the mount should be 14-1/4" or less from the center of the U-bracket hole to level ground. If the mount is higher than 14-1/4", the enclosed adapter plates need to be attached to the mount adapter. (The mount adapter comes packaged with the blade crate assembly.)

If the measured height is 14-1/4" or less, no height adjustment is needed.



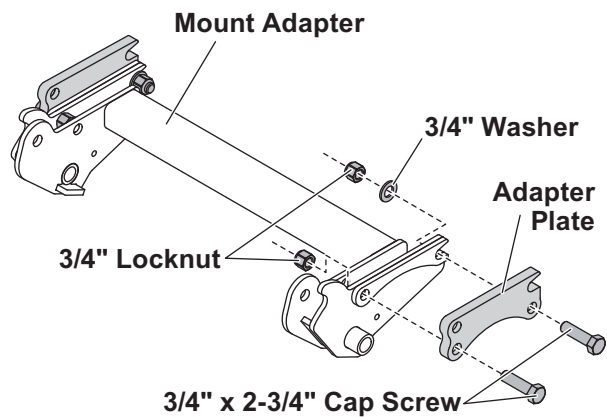
If the measured height is 14-1/4" to 16", install the short height adjustment adapter plates as described.



MOUNT ADAPTER INSTALLATION

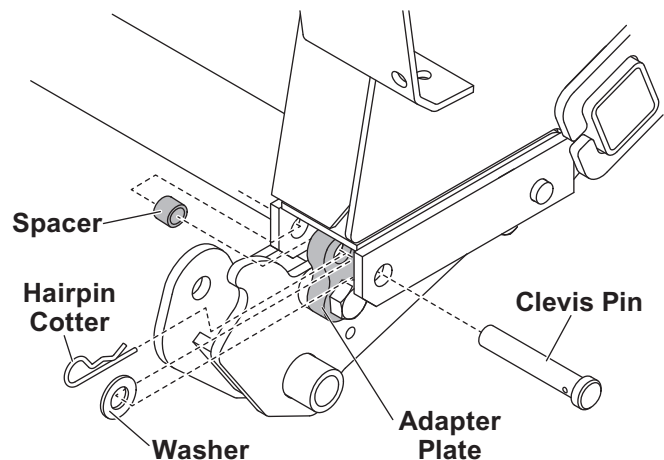
If adapter plates are required, install as follows:

1. Position the adapter plate against the driver-side portion of the mount adapter as shown. Insert a 3/4" x 2-3/4" cap screw through the lower front adapter plate hole and through the appropriate hole on the mount adapter. Secure with a locknut.
2. Insert a cap screw through the rear adapter plate hole, through the slot on the mount adapter and through a washer. Secure with a locknut.



3. Repeat for the passenger's side. Torque all four fasteners according to torque chart.

When positioning the mount adapter between the undercarriage brackets, insert a spacer between the adapter plate and the inner side plate of the undercarriage as shown.



NOTE: After five to ten hours of snowplow usage, retorque all mount assembly fasteners.



Blizzard
PO Box 245038
Milwaukee, WI 53224-9538
www.blizzardplows.com

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