



**31500**

**UNDERCARRIAGE KIT**

**Ford F-150 4X4**

**2004 - 08**

**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.

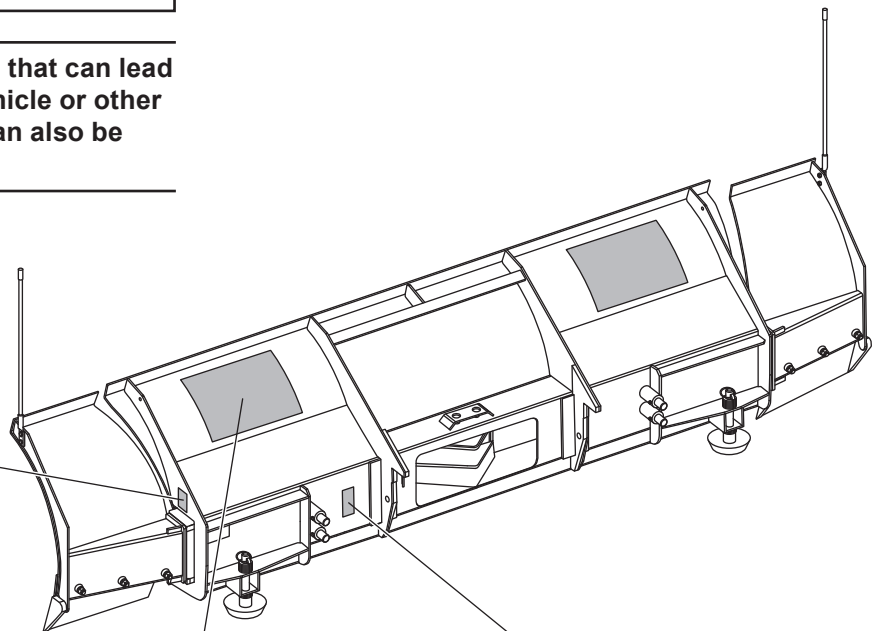
## WARNING/CAUTION & INSTRUCTION LABELS

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™ and SPEEDWING™ Blades Only (both sides)**



ATTACH	⚠ WARNING: Keep fingers away from snowplow and truck attachment points. POWER HITCH™ arm raises behind undercarriage pushbeam.	DETACH
<ol style="list-style-type: none"> <li>Slowly drive vehicle forward to engage mount adapter into A-frame.</li> <li>Turn power switch to center or "OFF" position.</li> <li>Plug in electrical harnesses.</li> <li>Push and hold power switch RIGHT and push UP and hold arm/blade operation switch, Arm will engage mount adapter and pull snowplow towards vehicle.</li> <li>Install both hitch pins. Hitch pin is fully engaged when pin handle is against the pin guide plate.</li> <li>While holding power switch RIGHT, push DOWN and hold arm/blade operation switch, Arm will disengage mount adapter to relieve tension on the stand.</li> <li>Pull and raise the stand until the stand pin seats into upper hole on the A-frame.</li> <li>Turn power switch to left or "Flowing" position.</li> </ol>		<ol style="list-style-type: none"> <li>Lower snowplow onto ground with blade straight. Turn plow control in cab to "OFF" position.</li> <li>Turn power switch to center or "OFF" position.</li> <li>While holding the power switch RIGHT, push DOWN and hold the arm/blade operation switch, Arm will disengage mount adapter to relieve tension on the stand.</li> <li>Pull and lower the stand until stand pin seats into lower hole on the A-frame and stand and light tower side plates contact.</li> <li>Push and hold power switch RIGHT and push UP the arm/blade operation switch, Arm will engage mount adapter and pull snowplow tightly to vehicle.</li> <li>Remove both hitch pins.</li> <li>While holding power switch RIGHT, push DOWN and hold arm/blade operation switch to fully lower arm.</li> <li>Unplug electrical harnesses.</li> </ol>
<p>Read Owner's Manual for Complete Instructions.</p> <p><small>U.S. Patents 5,420,480; 5,638,615; 5,899,007; 6,178,669; 6,253,470; 6,276,076; 6,393,737; 6,408,549; 6,412,199; 6,442,877; 6,615,513; 7,134,227; RE 35,700; CAN Patents 2,060,425; 2,194,922; 2,220,763; 2,259,503; 2,353,145; 2,358,324; 2,469,199; and other patents pending. 4828</small></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 ON/OFF switch to OFF whenever the snowplow is not in use. The control 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 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.**

# TORQUE SPECIFICATIONS

## 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

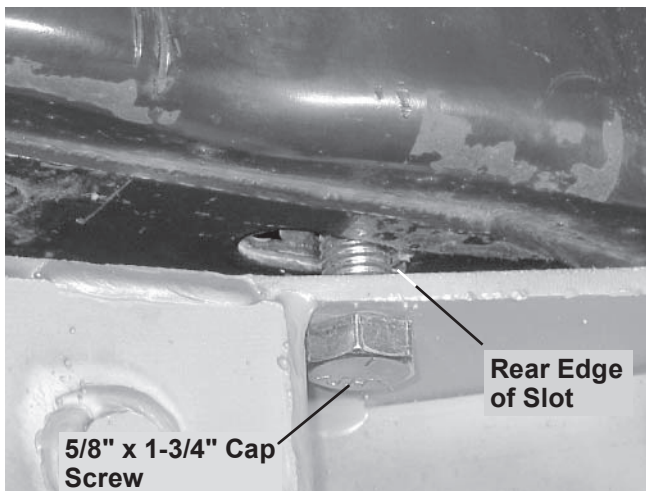
Metric Class 8.8 Torque Values				Metric Class 10.9 Torque Values			
Diameter (mm)	Clamp Loads (lb)	Tightening Torque		Diameter (mm)	Clamp Loads (lb)	Tightening Torque	
		"Lubricated"	"Dry"			"Lubricated"	"Dry"
5	1,389	3 ft-lb	5 ft-lb	5	1,987	5 ft-lb	7 ft-lb
6	1,965	6 ft-lb	8 ft-lb	6	2,812	8 ft-lb	11 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

# UNDERCARRIAGE INSTALLATION

## INSTALLATION INSTRUCTIONS

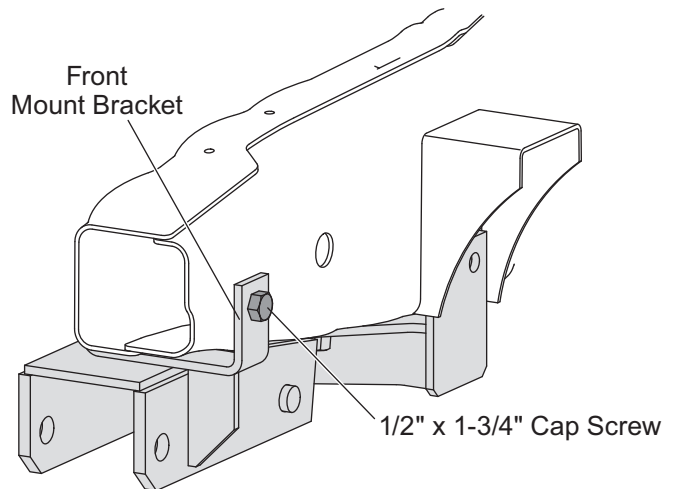
**NOTE: For easier assembly and installation, vehicle and all snowplow components should be on a smooth, level, hard surface, such as concrete.**

1. Detach the rubber splash shield at the bottom edge of the bumper by removing the three plastic fasteners. From the top surface of the bumper, remove the five metric cap screws which fasten the plastic trim, hood-release handle, and grill bumper. Also remove the hood-release cable support. Remove the tow hooks from the vehicle frame and save the parts for reinstallation if mount is removed from the vehicle.
2. If necessary, remove the skid plate and save the parts for reinstallation if mount is removed from the vehicle.
3. Disconnect fog lamp harness connections if so equipped.
4. Remove four nuts (two on each side of vehicle) from the back surface of the bumper brackets. Slide the bumper forward to remove.
5. Place the driver-side mount against the vehicle frame rail and attach by inserting a  $5/8"$  x  $1-3/4"$  cap screw through the  $11/16"$  diameter hole in the top surface of the mount and against the rear edge of the slot in the bottom wall of the frame rail.

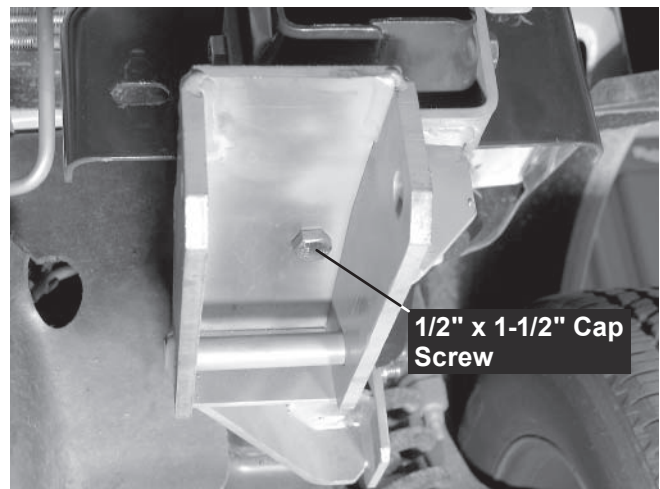


Secure with a hardened washer and locknut from within the frame rail. Do not tighten. Verify the mount is tight against the frame rail by using a C-clamp to hold the front of the mount to the front of the frame rail.

6. Using the front mount bracket as a template, drill a  $1/2"$  hole through the outer and inner side walls of the frame rail. Insert a  $1/2"$  x  $1-3/4"$  cap screw through hole in each side of mount, frame rail side wall, and spacer. Secure with a hardened washer and locknut from within the frame rail. Tighten the  $5/8"$  fasteners installed in Step 1.

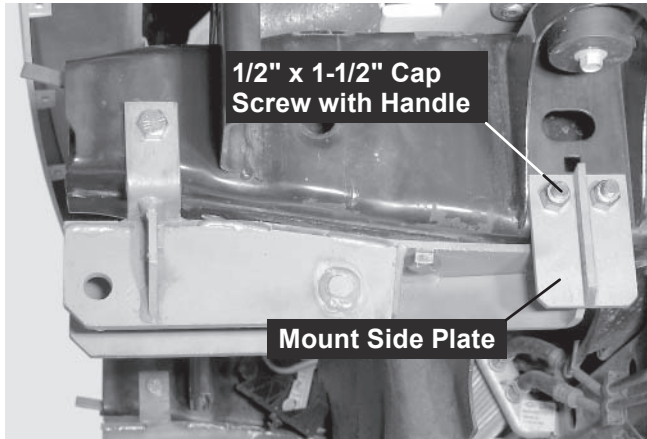


7. Using the  $9/16"$  diameter hole in the top surface of the mount as a template, drill a  $1/2"$  hole through the bottom wall of the frame rail and insert a  $1/2"$  x  $1-1/2"$  cap screw. Secure with hardened washer and locknut from within the frame rail.

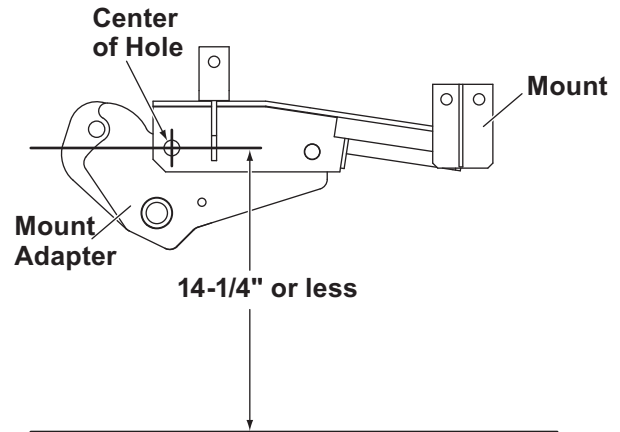


# UNDERCARRIAGE INSTALLATION

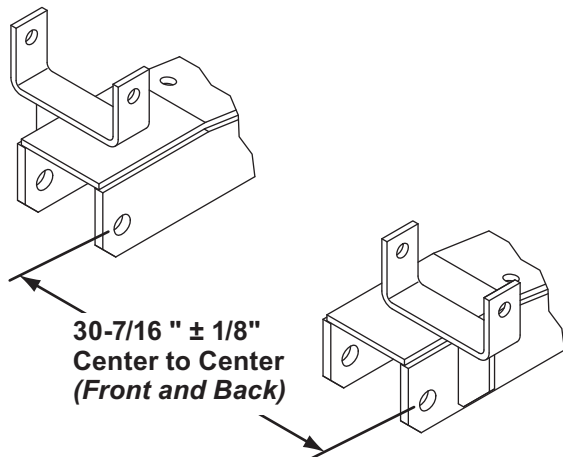
- Using the 9/16" diameter holes in the mount side plate as a template, drill 1/2" holes through the side wall of the frame rail. Insert a 1/2" x 1-1/2" cap screw with handle and hardened washer from within the frame rail through each hole and secure with locknut.



The recommended height of the mount is 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.)



- Repeat for passenger side.
- Check U-bracket alignment per illustration below. Loosen fasteners and realign as necessary.

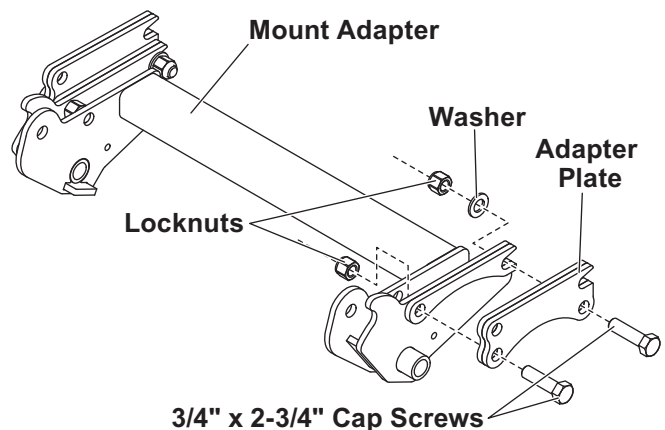


If the measured height is 14-1/4" or less, no height adjustment is needed. Skip to Step 15.

If the measured height is 14-1/4"–15-3/4", install the short height adjustment adapter plates as described.

If adapter plates are required, install as follows:

- Position the adapter plate against the driver's 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.



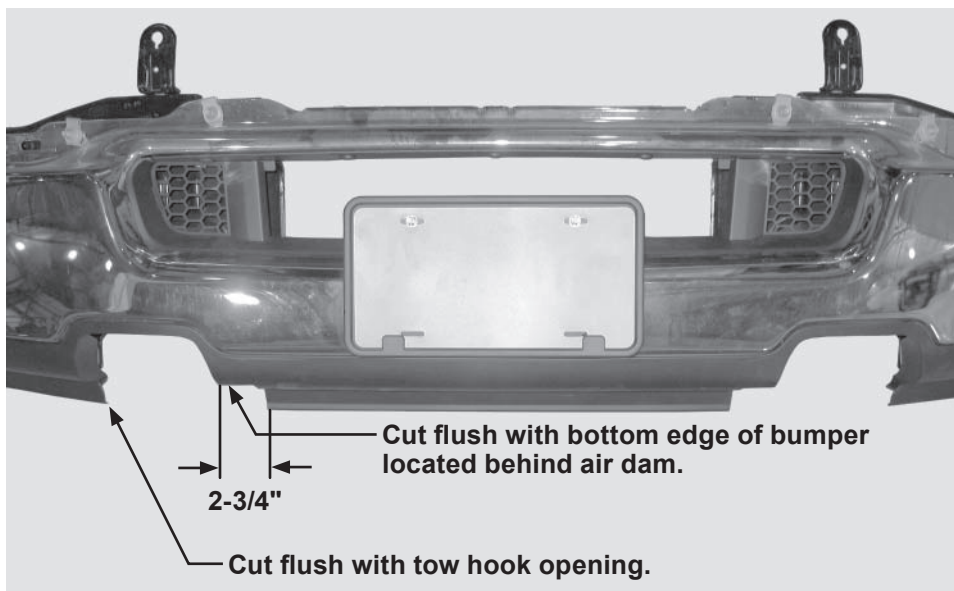
- With the vehicle on level ground, measure from the ground to the center of the hole on the U-bracket side plate on the mount.

## UNDERCARRIAGE INSTALLATION

---

13. 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.
14. Repeat for the passenger's side.
15. Tighten all fasteners according to the torque chart.
16. The air deflector will require notching for clearance of mount receivers, or it may be removed from vehicle. If deflector is removed from vehicle, save deflector and fasteners for reinstallation in the event the snowplow mount is removed from vehicle.

Use a box cutter or saw to cut the bumper fascia as shown. Use sand paper to smooth rough edges.



17. Reinstall the bumper to its original position using existing fasteners.
18. Reconnect fog lamp harness connectors if so equipped.

19. Reattach rubber splash shield at the bottom edge of the bumper and, at the top surface of the bumper, reinstall the four metric hex cap screws, plastic trim, hood-release handle and grill bumper. Reinstall the hood-release cable support.

---

**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](http://www.blizzardplows.com)

 A DIVISION OF DOUGLAS DYNAMICS, L.L.C.

Copyright © 2008 Douglas Dynamics, L.L.C. All rights reserved. This material may not be reproduced or copied, in whole or in part, in any printed, mechanical, electronic, film or other distribution and storage media, without the written consent of Blizzard. Authorization to photocopy items for internal or personal use by Blizzard outlets or snowplow owner is granted.

Blizzard reserves the right under its product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used. Blizzard or the vehicle manufacturer may require or recommend optional equipment for snow removal. Do not exceed vehicle ratings with a snowplow. Blizzard offers a limited warranty for all snowplows and accessories. See separately printed page for this important information. The following is a registered (®) trademark of Douglas Dynamics, L.L.C.: BLIZZARD®.

**Printed in U.S.A.**