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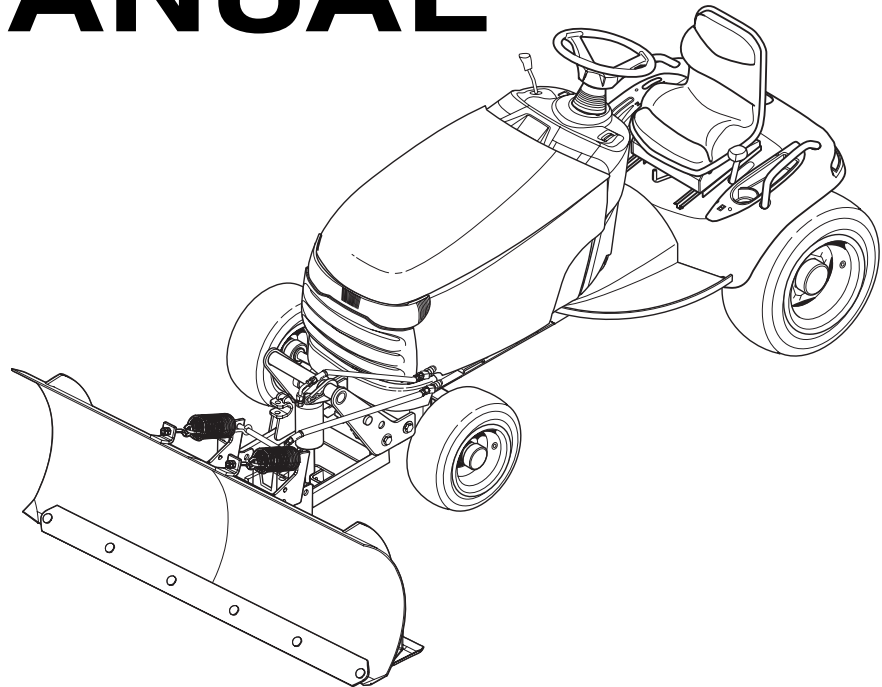
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# OPERATOR'S MANUAL



## 60" Angling Snow / Dozer Blade & Hitch

### Snow Plow/Dozer Blade

Mfg. No.	Description
1694387	60" Angling Dozer Blade

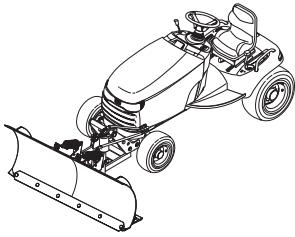


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*NOTE: In these instructions, “left” and “right” are referred to as seen from the operating position.*

## Recommended Accessories

For best performance, it is recommended to use tire chains and two rear wheel weights. A rear-mounted weight box can also be added for additional traction. The maximum weight added to the tractor should not exceed 35 lbs. per wheel, plus 100 additional pounds in the rear weight box.

For operation on slopes greater than 15% (8.5°), Quick Tach Weights, tire chains, and wheel weights are required. Never operate on slopes greater than 17.6% (10°).

# Safety Rules & Information



Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of unit, severe personal injury or death to you, or bystanders, or damage to property or equipment.

The triangle  in text signifies important cautions or warnings which must be followed.

## GENERAL WARNINGS

- Know the controls and how to stop quickly. READ THE TRACTOR OPERATOR'S MANUAL.
- Read this manual and the tractor Operator's Manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
- Never allow children to operate the machine. Do not allow adults to operate it without proper instruction.
- Do not carry passengers.
- Use only attachments or accessories designed for your machine. See your dealer for a complete list of recommended attachments or accessories.
- Keep the area of operation clear of all persons, particularly small children and pets.
- Never direct discharge towards bystanders.
- Make sure all hardware is secure and that dozer blade is in good operating condition.
- Check to be sure all safety devices and shields are in place.
- Check that all adjustments are correct before using this unit.
- Gasoline is highly flammable. Follow all precautions listed in your tractor's operator's manual.
- Always wear eye protection while operating and performing adjustments to protect eyes from debris thrown by the dozer.
- When cleaning, repairing, or inspecting the unit make sure all moving parts have stopped. Disconnect and secure the spark plug wires and remove the key to prevent accidental starting.

## DANGER

### OPERATING ON SLOPES CAN BE DANGEROUS

For operation on slopes greater than 15% (8.5°), weight box, tire chains and wheel weights are required. NEVER OPERATE ON SLOPES GREATER THAN 17.6% (10°).

## PREPARATION

- Disengage the PTO before making any adjustments.
- Never attempt to make any adjustments while engine is running.
- Thoroughly inspect the area where the dozer is to be operated and remove all foreign objects.
- Adjust the skid shoe height to clear gravel or crushed stone surface. See the Adjustments section for procedure.

## OPERATING SAFETY

- Always clear snow up and down the face of slopes, never across the face. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
- Exercise extreme caution when operating on, or crossing, gravel drives, walks or roads. Stay alert for hidden hazards or traffic.
- After striking an object or if unit starts to vibrate abnormally, stop the engine and remove the key. Check for the cause and any damage before restarting. Before any inspection, make sure all moving parts have stopped.
- Take all possible precautions before leaving operator's position. Lower the attachment, set the parking brake, stop the engine and remove the key.
- Never operate near glass enclosures, automobiles, window wells, dropoffs, etc.
- Do not put hands or feet near or under the dozer blade. Keep clear of the dozer blade at all times.
- Do not overload machine capacity by attempting to clear too much material at too fast a rate.
- Never operate unit at high transport speeds on slippery surfaces. Use care when travelling in reverse.
- Never operate the dozer blade without good visibility or light. Always be sure your feet are properly placed on the footrests and keep a firm hold on the steering wheel.
- Do not run the engine indoors.
- Never allow anyone in front of the unit.

## CONTROL FUNCTIONS

The information below briefly describes the function of individual controls. Operating the tractor and dozer require the combined use of these controls and additional controls whose operation is described in the tractor Operator's Manual.

### CONTROLS

#### TRACTOR CONTROLS

Before you begin operating the tractor with the dozer blade attachment make certain you have:

- Read and understood the instructions in the tractor Operator's Manual.
- Become thoroughly familiar with all of the tractor controls and their operation, including how to safely and properly start and stop the unit.
- Practice driving in an open area—without dozing—to become accustomed to the unit.

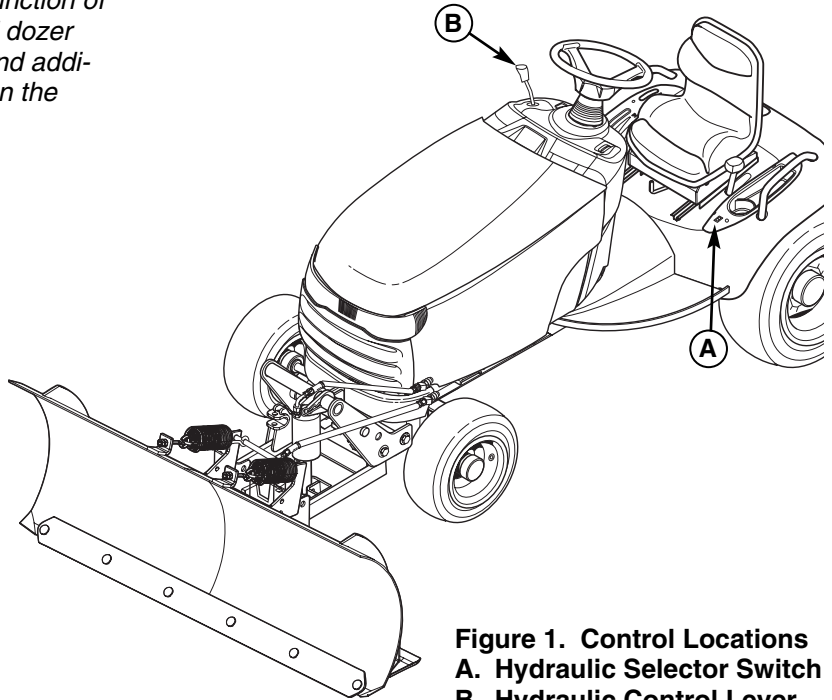


Figure 1. Control Locations  
A. Hydraulic Selector Switch  
B. Hydraulic Control Lever

#### A. Hydraulic Selector Switch

The hydraulic selector switch (A, Figure 1) directs hydraulic control to attachments. The selector switch is turned to the FRONT position for front attachments.

#### B. Hydraulic Control Lever

The attachment lift control (B, Figure 1) is also used to control attachments that use the tractor's auxiliary hydraulic couplers located on the right and left front frame rails. The left set of quick couplers is activated when the front / rear hydraulic switch is turned to the FRONT position (this disables the inboard hydraulic lift).

Moving the control lever to the left (A, Figure 2) angles the attachment left. Moving the lever right (B, Figure 2) angles the attachment right.

Pulling the lever back should raise the attachment lift (C, Figure 2). Pushing the lever forward to the first detent lowers the attachment lift (D, Figure 2). Pushing the lever forward to the second detent locks the control in "float" position, allowing the lift mechanism to float up and down.

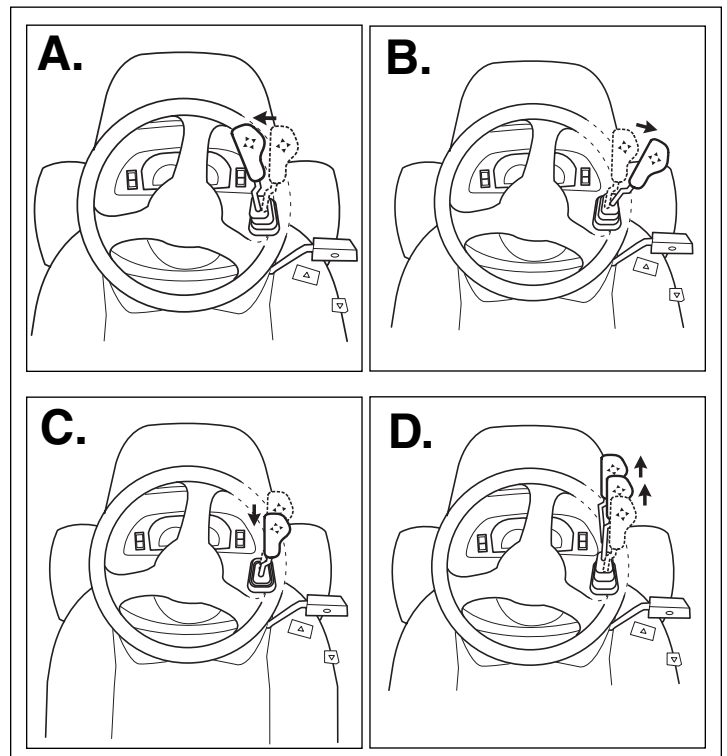


Figure 2. Control Functions

# General Operating Instructions



## Checks Before Starting

1. Refer to the Maintenance & Adjustments sections of this manual and perform any needed service. Also, refer to the tractor Operator's Manual and perform any required service.
2. Remove any objects from the work area which might interfere with plowing activity.
3. Adjust the skid shoes to desired height. See Skid Shoe Adjustment.
4. Make sure all hardware is present and secure.

## Engine & Ground Speed Selection

Always run the engine at full throttle.

Set tractor speed to obtain the needed power to move material. Operate at a safe speed, depending on conditions, so that you have complete control of the tractor. Rear wheel weights and chains are required for slippery surfaces.

A weight box is required for additional traction.

## Transporting

For maximum ground clearance, transport the blade to and from work areas fully raised and angled straight ahead.

## Starting & Stopping

1. Start the tractor engine. Set engine throttle to full.
2. Raise the attachment lift and travel to the work site.
3. Set the angling control to the desired angle.
4. Lower the attachment lift and begin plowing.
5. Raise the plow before backing up.
6. To stop the tractor, set ground speed to neutral and set the parking brake. Before leaving the seat, stop the engine, set the parking brake, remove the key, and wait for all moving parts to stop.

## WARNING

Perform the Safety System Interlock test found in your tractor Operator's Manual. If tractor does not pass the test, do not operate the tractor. See your authorized dealer. Under no circumstances should you attempt to defeat the safety system.

Use caution when plowing a snow covered area. Snow can cover objects such as curbs, drop-offs, and other obstacles. Be familiar with the area you are plowing.

To prevent an explosion or fire, never store the tractor with fuel in the tank inside a building where an ignition source is present.



## IMPORTANT NOTE

To prevent damage to the unit, always raise the dozer blade BEFORE turning or backing up.

## DANGER

### OPERATING ON SLOPES CAN BE DANGEROUS

Never operate on slopes greater than 17.6% (10°) which is a rise of 3-1/2 feet (106cm) vertically in 10 feet (607cm) horizontally.

Operate the unit at a slow ground speed when driving onto slope. Avoid using brakes to control ground speed.

Use additional wheel weights or counterweights.

In addition to counterweights, use extra caution when operating on slopes. Drive UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.

For additional traction, tire chains and a weight box are required.



## Changing Angle of the Blade:

See Figure 1 for location of Controls.

*NOTE: It is easier to change the angle of the blade with the attachment raised.*

1. Raise the attachment lift.
2. Move the control lever to the right or left to move the blade left or right.

## Dozing Tips

- Determine the best dozing pattern before beginning.
- When land contour permits, it is best to travel in the longest direction to minimize turning.
- In very deep snow or gravel, it may be necessary to make the first pass with dozer blade partially raised, then repeat each pass with the blade lowered to clear the material left on the surface. Also, it may be necessary to clear less than the full width of the dozer blade or reduce ground speed.
- When dozing, push the dirt to the desired location, then drag the blade backwards for final leveling. Pack down the dirt or gravel by driving the tractor over the leveled area.
- Use any slight grade to your advantage, doze downhill, and set the blade angle so that the plowed material is moving downhill as it leaves the blade.

## Snow Plowing Tips

- Determine the best snow removal pattern before beginning.
- Plan the pattern so that you avoid pushing snow onto cleared areas.
- When land contour permits, it is best to travel in long straight lines to minimize turning.
- In very deep or heavy snow, it may be necessary to make the first pass with dozer blade partially raised, then repeat each pass with the blade lowered to clear the material left on the surface. Also, it may be necessary to clear less than the full width of the dozer blade or reduce ground speed.
- Snow tends to freeze into solid banks when plowed off a driveway or other large area. Because of this you may want to plow snow several feet past the edge of the drive to allow space for future plowing to build up.
- If pushing snow past the edges of driveways or sidewalks, be careful not to tear up the grass buried under snow next to the drive or sidewalk. Lift the blade several inches off the ground to avoid damaging the grass.
- Spinning tires with tire chains can leave unsightly marks or permanent damage to asphalt or concrete driveways or sidewalks. Avoid sudden stops or starts.

## Storage



**IMPORTANT NOTE**  
Refer to Tractor Operator's Manual for important information concerning safely storing your tractor.

### Daily Storage

1. Allow tractor engine to cool before storing in any enclosure.
2. After dozing or plowing jobs are completed, hose or brush down the blade to remove excess dirt.
3. Lightly oil all pivot points. Coat bare metal surfaces to prevent corrosion.

### Off-Season Storage

1. Remove dozer blade and hitch from the tractor.
2. Use water pressure or a brush to thoroughly clean the dozer blade.
3. Paint, or lightly coat with oil, any area where paint has been worn or chipped away.
4. Lubricate the dozer blade.
5. Store the dozer blade and hitch in a dry place.



## **⚠ WARNING**

To avoid serious injury, perform maintenance on the tractor or dozer blade only when the engine is stopped, parking brake is set, all moving parts have stopped and lower blade. Always remove the ignition key before beginning maintenance or adjustments to prevent accidental starting of the engine.

### Schedule For Normal Care

Care Required	Schedule
Clean debris from dozer blade.	After each use.
Lubricate dozer blade.	Every 10 hours or at least once a year.

### Lubricate Dozer Blade

Lubricate the dozer blade as shown in Figure 3. Where an oil can is shown, wipe the area clean, apply a few drops of oil (SAE 30), then wipe up drips or spills.

In general, linkage connections and other parts that have partial rotational or sliding movement should be lubricated periodically with SAE 30 weight oil. Avoid applying excessive amounts of oil since this may cause a build-up of dirt around the lubricated area, making subsequent lubrication more difficult to accomplish.

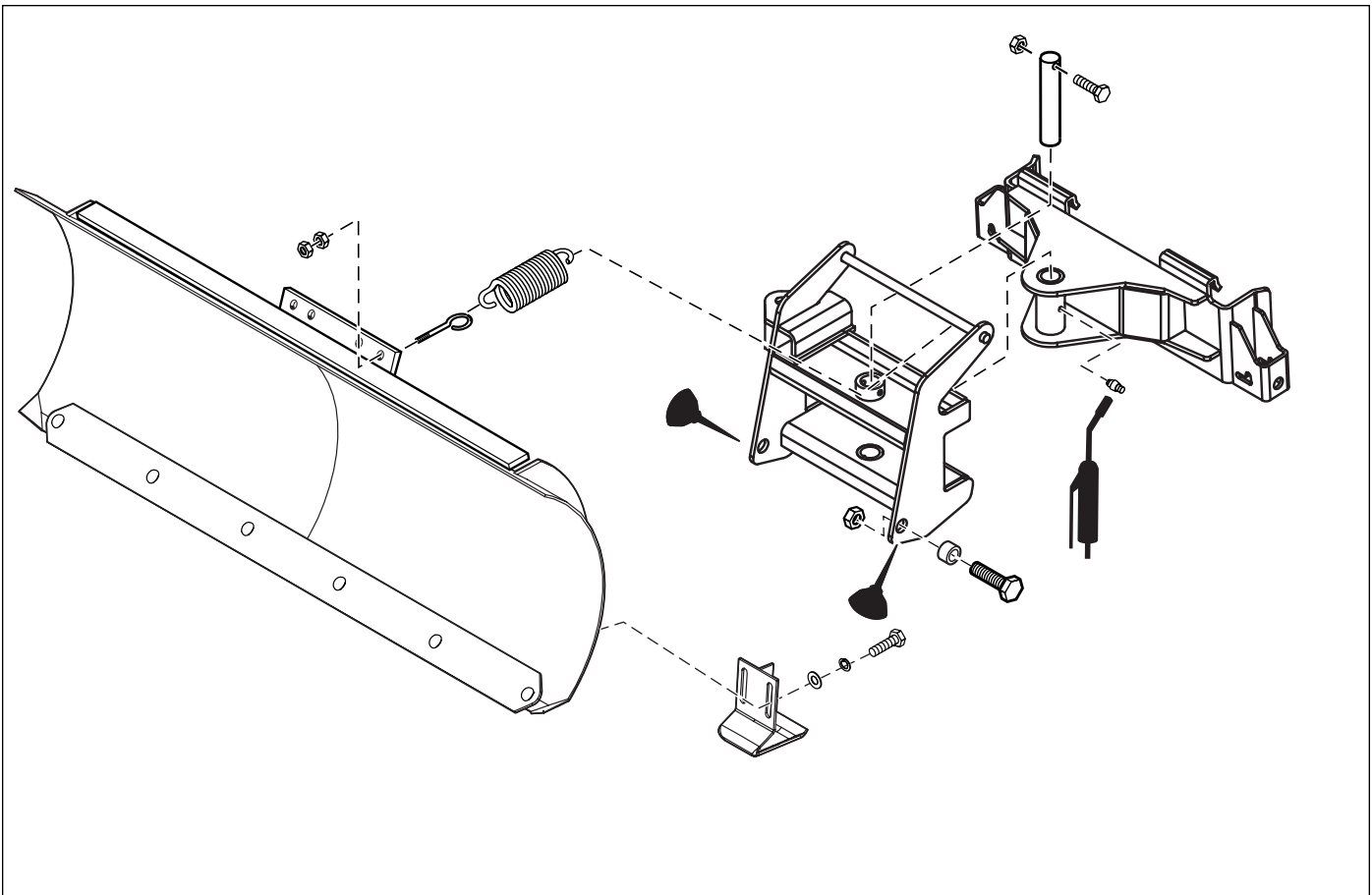


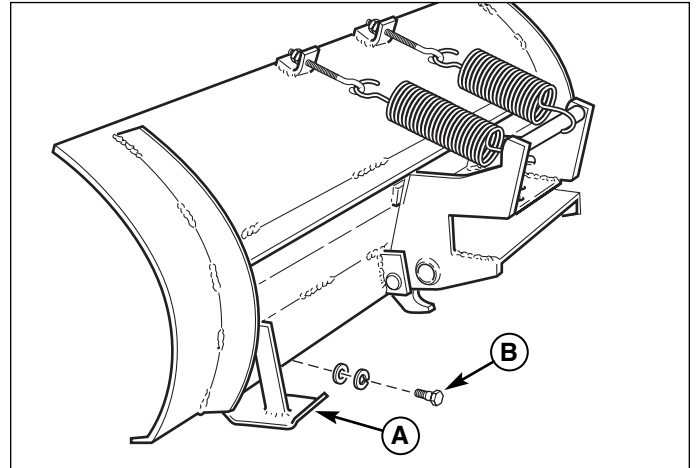
Figure 3. Lubrication Points

## Skid Shoe Adjustment

Slotted holes are provided to permit adjustment of the shoe assemblies for raising and lowering the blade to various working heights (see Figure 4).

When cleaning snow from gravel, earth drives or walks, the shoe assemblies should be lowered fully to prevent blade contact with gravel or ground. When cleaning smooth hard surfaces like concrete, the shoe assemblies are normally placed fully up to allow the blade to scrape the surface.

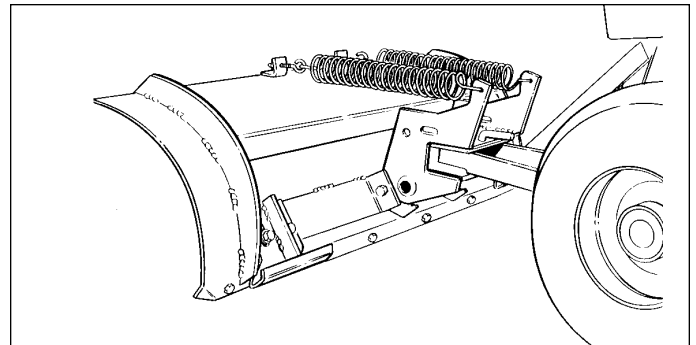
To adjust the skid, raise the blade off the ground and block with a piece of wood. Loosen the bolts (B, Figure 3) and move the skid shoes (A) up or down to desired height. Tighten the bolts securely.



**Figure 4.**  
**A. Skid Shoes**  
**B. Bolts**

## Spring Tension

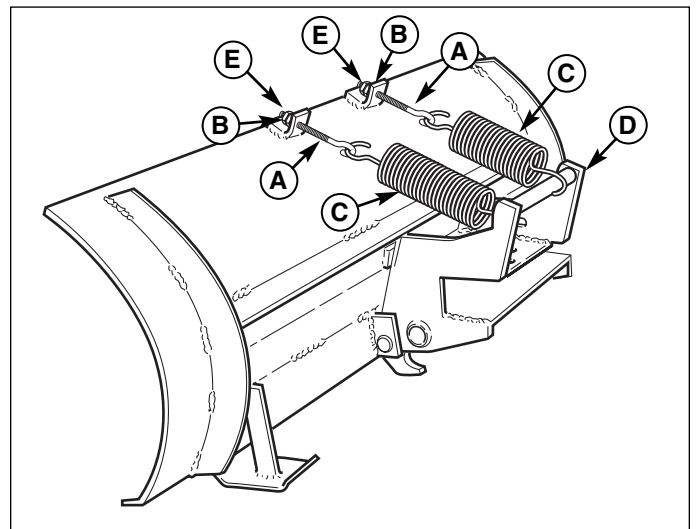
See Figure 5. This snow plow/dozer blade is spring loaded so that when the blade strikes a solid object, the springs will allow the blade to release as shown, rather than cause damage. The blade will go back to its original position after object is cleared.



**Figure 5. Dozer Blade "Released"**

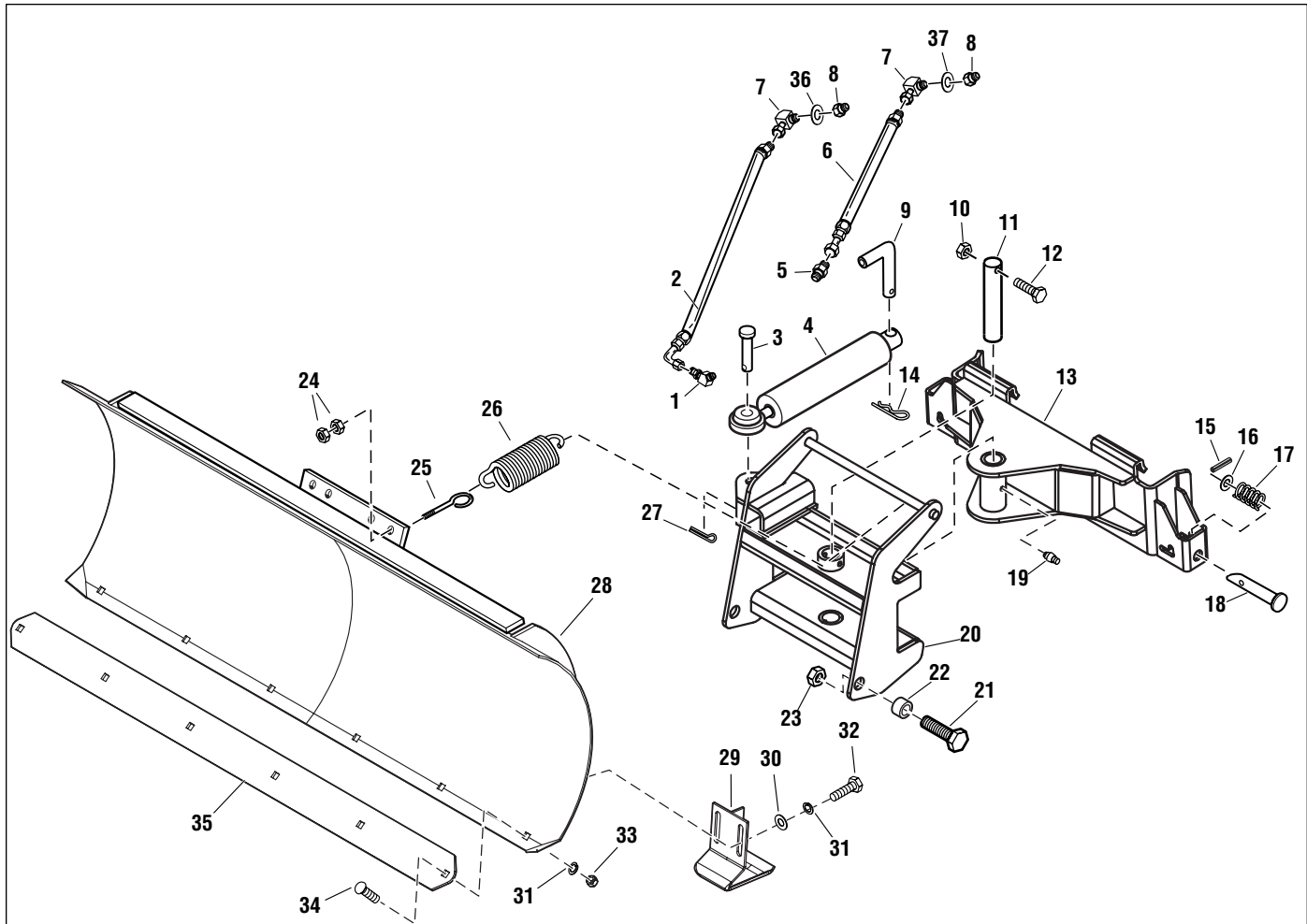
See Figure 6. To adjust spring tension hold rear nut (B) and loosen front nut (E). Tighten rear nut (B) to increase spring tension, or loosen to decrease tension.

For initial adjustment, tighten nut (B) on each eyebolt enough to expose about 3/4" (19mm) of thread. Tighten front nut (E) against rear nut (B) to lock adjustment in place.



**Figure 6. Tension Springs**  
**A. Eyebolt**  
**B. Nut, 5/16**  
**C. Spring**  
**D. Pivot Frame**  
**E. Nut, 5/16**

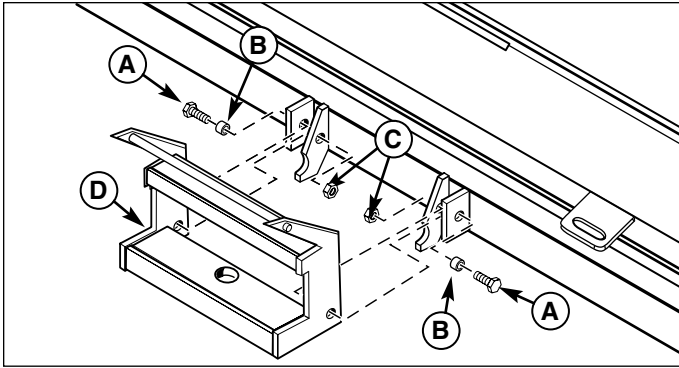
# Initial Setup & Assembly



Ref. Qty	Description
1	FITTING, Elbow, 1/8NPT x 1/2-20
2	HOSE ASSEMBLY, 30" Long
3	PIN, Clevis
4	CYLINDER, Hydraulic
5	FITTING, Male, 1/8NPT x 7/16-20
6	HOSE ASSEMBLY, 22" Long
7	FITTING, Elbow, Swivel, 1/4-18
8	NOSE PIECE ASSEMBLY
9	PIN, Hitch
10	NUT, Hex Lock ESNA, 1/4-20
11	SHAFT
12	CAPSCREW, Hex Head, 1/4-20 x 2
13	HITCH ASSEMBLY
14	CLIP, Hair Pin
15	PIN, Roll
16	WASHER, 5/8
17	SPRING, Compression
18	PIN, Flat Head, Drilled
19	FITTING, Lube

Ref. Qty	Description
20	FRAME ASSEMBLY
21	CAPSCREW, Hex Head, 1/2-13 x 1-1/2
22	SPACER
23	NUT, Hex Centerlock, 1/2-13
24	NUT, Hex, 5/16-18
25	EYEBOLT
26	SPRING, Extension
27	PIN, Cotter
28	BLADE ASSEMBLY
29	SHOE ASSEMBLY
30	WASHER, 3/8
31	LOCKWASHER, 3/8
32	CAPSCREW, Hex Head, 3/8-16 x 3/4
33	NUT, Hex, 3/8-16
34	CARRIAGE BOLT, 3/8-16 x 1
35	PLATE, Wear
36	WASHER, Nylon, Green
37	WASHER, Nylon, Yellow

Figure 7. Dozer Blade and Pivot Hitch



**Figure 8. Blade and Hitch Installation**  
**A. Capscrew, 1/2-13 x 1-1/2 C. Nut, Lock, 1/2-13**  
**B. Spacer D. Frame Assembly**

## INITIAL INSTALLATION

### BLADE ASSEMBLY

1. Connect the blade to the hitch (D, Figure 8) using the capscrews (A), spacers (B) and locknuts (C).

### ANGLING CYLINDER INSTALLATION

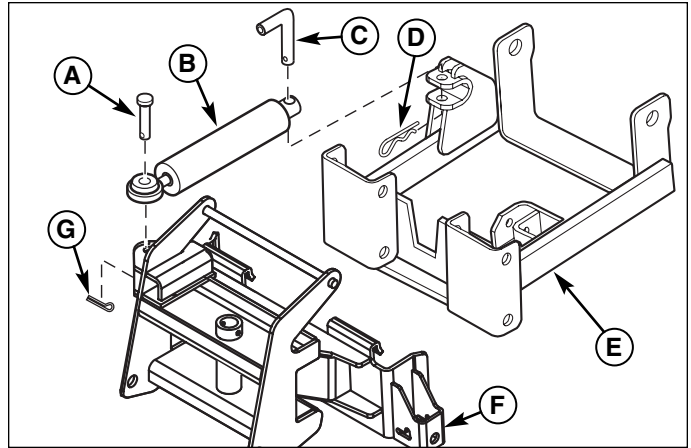
2. Install the hydraulic cylinder (B, Figure 9) with the short rod connected to hitch (E). Secure with the hitch pin (C) and hair pin (D), the pin should be installed from front to back as shown. Connect the long rod to the front frame assembly (F) with clevis pin (A) and cotter pin (G).

### HOSE INSTALLATION

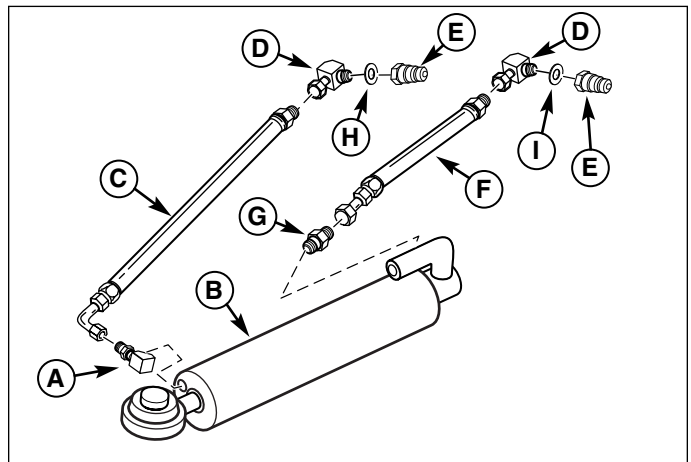
3. Install 45 degree fitting (A, Figure 10) in the front of the cylinder (B) and install the straight fitting (G) in the rear. Apply teflon thread sealer.
4. Connect 45 degree fittings (D, Figure 10) to quick disconnect fittings (E). Apply teflon thread sealer.
5. Connect hose (C, Figure 10) to fitting (A) and connect fitting (D) to other end of hose (C). Place washer (H) between fitting (D) and quick connect (E). Place quick connector (E) upper connector (green) on tractor. After proper routing secure and tighten fittings.
6. Connect hose (F, Figure 10) to fitting (G) and connect fitting (D) to other end of hose (C) Place washer (I) between fitting (D) and quick connect (E). Place quick connector (E) upper connector (yellow) on tractor. After proper routing secure and tighten fittings.

### SPRING INSTALLATION

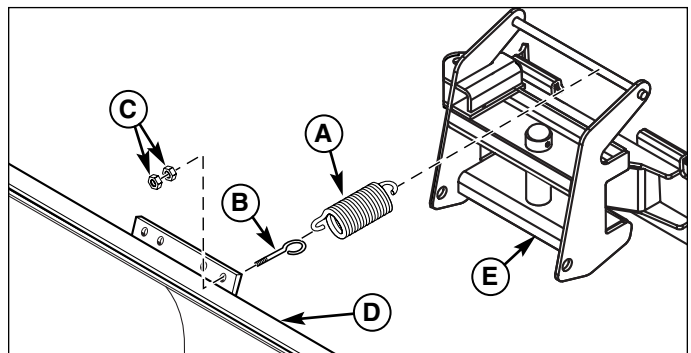
7. Place the small loop of spring (A, Figure 11) through eye bolt (B). Insert eyebolt (B) through the outside holes of the blade (D) and start nut (C). Pull spring and loop over bar on hitch frame assembly (E).
8. Turn nut (C, Figure 11) to tension the spring. After the the slack is gone lock the nut in place by turning a second nut (C) on the eyebolt and turning against each other locking the eyebolt (B) in place.



**Figure 9. Cylinder Installation**  
**A. Clevis Pin E. Hitch**  
**B. Hydraulic Cylinder F. Frame Assembly**  
**C. Pin G. Cotter Pin**  
**D. Hair Pin**



**Figure 10. Hose Installation**  
**A. Fitting, 1/8NPT x 1/2-20 F. Hose, 22" Long**  
**B. Hydraulic Cylinder G. Fitting, 1/8NPT x 7/16-20**  
**C. Hose, 30" Long H. Washer, Green**  
**D. Fitting, Elbow, Swivel I. Washer, Yellow**  
**E. Quick Disconnect**



**Figure 11. Spring Installation**  
**A. Spring D. Dozer Blade**  
**B. Eyebolt E. Frame Assembly**  
**C. Nuts, 5/16-18**

# Initial Setup & Assembly

## INSTALLATION (CONT.)

### BLADE TO PUSH BAR INSTALLATION

9. Fully lower the attachment lift.
10. See Figure 12. Pull the shot pins out and lock them.
11. Drive the tractor push bar (A, Figure 13) under the dozer hitch point (B). The dozer hitch points (B) need to line up side to side with the edges of the push bar (A). The dozer blade hitch points (B) will hang from the top edge of the push bar (A). Slowly lift the dozer blade 1/2 inch off the ground.
12. See Figure 12. Place shot pins in the Closed /In position.
13. Stop engine, lock parking brake and remove key.
14. Check that shot pins (Figure 12) are fully seated into push bar. If the shot pins do not seat all the way in the Closed / In position repeat steps 1-14.
15. Connect hydraulic hoses.

### BLADE & HITCH REMOVAL

1. Place the dozer blade in the forward position. Fully lower the attachment lift.
2. Disconnect hydraulic lines.
3. Remove hair pin (C, Figure 14) from pin (A). Pull pin (A) from cylinder (B). Remove cylinder (B) from push bar (D). Replace pins in cylinder to prevent loss or damage.
4. See Figure 12. Detach the dozer blade from the hitch by moving the shot pins into open position.
5. Lower the dozer blade to the ground and back out.
6. Reinstall pins for storage.

Install in reverse order of removal.

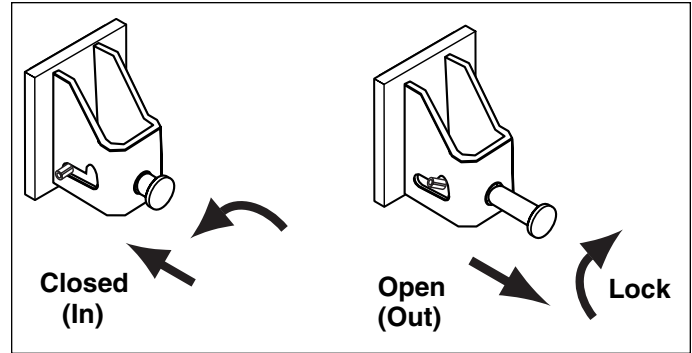


Figure 12. Shot Pins

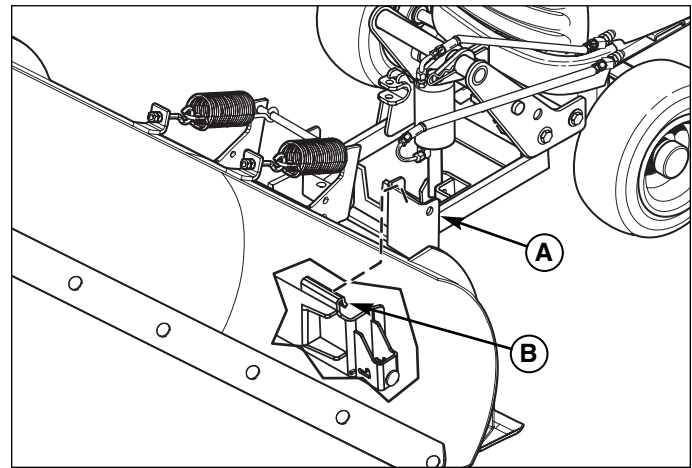


Figure 13. Dozer Hitch

- A. Push Bar
- B. Dozer Hitch

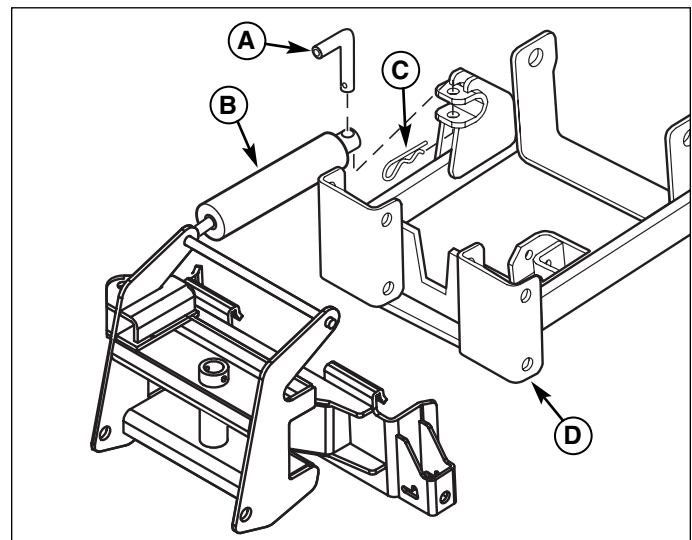


Figure 14. Blade & Hitch Removal

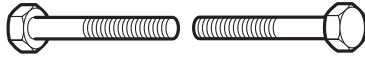
- A. Pin
- B. Hydraulic Cylinder
- C. Hair Pin
- D. Push Bar



# Hardware Identification & Torque Specifications

## Common Hardware Types

Hex Head Capscrew



Washer



Carriage Bolt



Lockwasher



Hex Nut

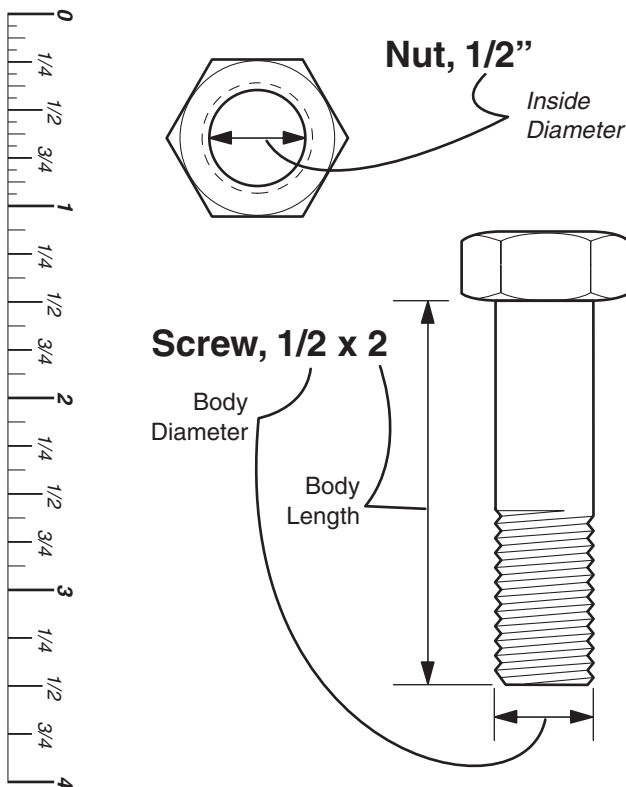


## Standard Hardware Sizing

When a washer or nut is identified as **1/2"**, this is the *Nominal size*, meaning the *inside diameter* is 1/2 inch; if a second number is present it represent the *threads per inch*

When bolt or capscrew is identified as **1/2 - 16 x 2"**, this means the *Nominal size*, or *body diameter* is 1/2 inch; the second number represents the *threads per inch* (16 in this example, and the final number is the *body length* of the bolt or screw (in this example 2 inches long).

**The guides and ruler furnished below are designed to help you select the appropriate hardware and tools.**



## Torque Specification Chart

FOR STANDARD MACHINE HARDWARE (Tolerance  $\pm 20\%$ )

Hardware Grade	No Marks SAE Grade 2		SAE Grade 5		SAE Grade 8	
	in/lbs ft/lbs	Nm.	in/lbs ft/lbs	Nm.	in/lbs ft/lbs	Nm.
8-32	19	2.1	30	3.4	41	4.6
8-36	20	2.3	31	3.5	43	4.9
10-24	27	3.1	43	4.9	60	6.8
10-32	31	3.5	49	5.5	68	7.7
1/4-20	66	7.6	8	10.9	12	16.3
1/4-28	76	8.6	10	13.6	14	19.0
5/16-18	11	15.0	17	23.1	25	34.0
5/16-24	12	16.3	19	25.8	27	34.0
3/8-16	20	27.2	30	40.8	45	61.2
3/8-24	23	31.3	35	47.6	50	68.0
7/16-14	30	40.8	50	68.0	70	95.2
7/16-20	35	47.6	55	74.8	80	108.8
1/2-13	50	68.0	75	102.0	110	149.6
1/2-20	55	74.8	90	122.4	120	163.2
9/16-12	65	88.4	110	149.6	150	204.0
9/16-18	75	102.0	120	163.2	170	231.2
5/8-11	90	122.4	150	204.0	220	299.2
5/8-18	100	136	180	244.8	240	326.4
3/4-10	160	217.6	260	353.6	386	525.0
3/4-16	180	244.8	300	408.0	420	571.2
7/8-9	140	190.4	400	544.0	600	816.0
7/8-14	155	210.8	440	598.4	660	897.6
1-8	220	299.2	580	788.8	900	1,244.0
1-12	240	326.4	640	870.4	1,000	1,360.0

### NOTES

- These torque values are to be used for all hardware excluding: locknuts, self-tapping screws, thread forming screws, sheet metal screws and socket head setscrews.
- Recommended seating torque values for locknuts:
  - for prevailing torque locknuts - use 65% of grade 5 torques.
  - for flange whizlock nuts and screws - use 135% of grade 5 torques.
- Unless otherwise noted on assembly drawings, all torque values must meet this specification.

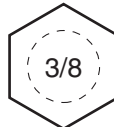
## Wrench & Fastener Size Guide



1/4" Bolt or Nut  
Wrench—7/16"



5/16" Bolt or Nut  
Wrench—1/2"



3/8" Bolt or Nut  
Wrench—9/16"



7/16" Bolt or Nut  
Wrench (Bolt)—5/8"  
Wrench (Nut)—11/16"



1/2" Bolt or Nut  
Wrench—3/4"