



90750, 90800, 90850, 90900, 93800, 93900, 97200, 97200-1
97200-3, 97250(CH), 97250-1(CH)
Fisher Engineering 97250-3(CH), 97300, 97300-1, 97300-3

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Lit. No. 41775, Rev. 05



HD2™ and HDX™ Snowplows

Installation Instructions

⚠ CAUTION

Read this document before installing the snowplow.

⚠ CAUTION

See your FISHER® outlet/website for specific vehicle application recommendations before installation. The eMatch tool has specific vehicle and snowplow requirements.

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.

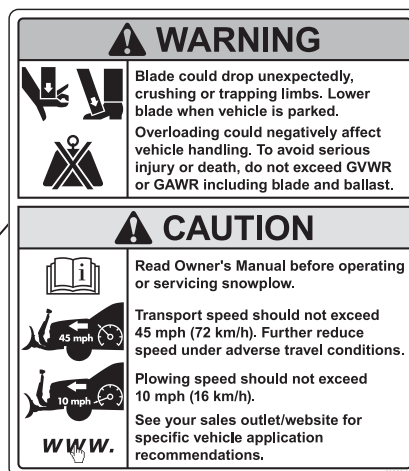
NOTE: Indicates a situation or action that can lead to damage to your snowplow and vehicle or other property. Other useful information can also be described.

WARNING/CAUTION AND INSTRUCTION LABELS

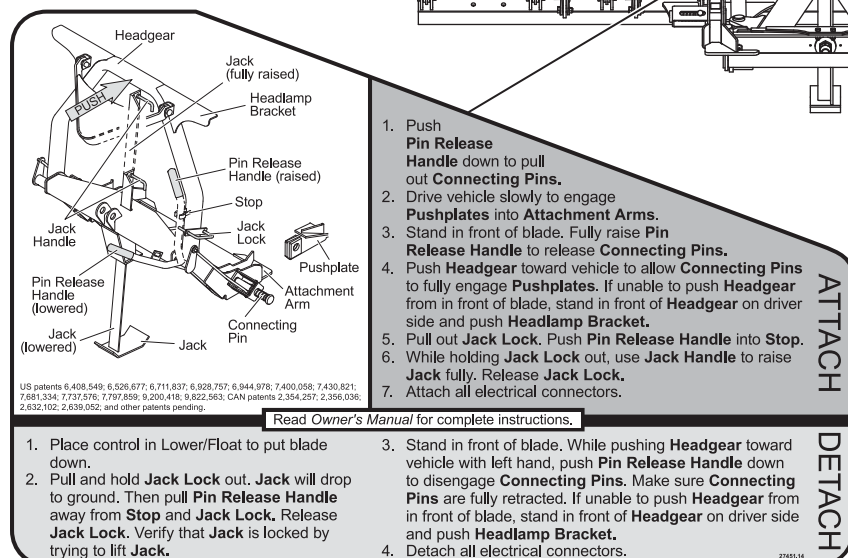
Become familiar with and inform users about the warning labels on the back of the blade and the instruction label on the headgear.

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

Warning/Caution Label



Instruction Label



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 the blade when the 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 blade and ballast. The rating label is found on 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 current eMatch selection system for minimum vehicle recommendations and ballast requirements.

HYDRAULIC SAFETY

WARNING

Hydraulic fluid under pressure can cause skin injection injury. If you are injured by hydraulic fluid, get medical attention immediately.

- Always inspect hydraulic components and hoses before using. Replace any damaged or worn parts immediately.
- If you suspect a hose leak, DO NOT use your hand to locate it. Use a piece of cardboard or wood.

FUSES

The FISHER® electrical and hydraulic systems contain several automotive-style fuses. If a problem should occur and fuse replacement is necessary, the replacement fuse must be of the same type and amperage rating as the original. Installing a fuse with a higher rating can damage the system and could start a fire. Fuse Replacement, including fuse ratings and locations, is located in the Maintenance section of the Owner's Manual.

PERSONAL SAFETY

- Remove the 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.

BATTERY SAFETY

⚠ CAUTION

Batteries normally produce explosive gases, which can cause personal injury. Therefore, do not allow flames, sparks, or lit tobacco to come near the battery. When charging or working near a battery, always cover your face and protect your eyes, and also provide ventilation.

- **Batteries contain sulfuric acid, which burns skin, eyes, and clothing.**
- **Disconnect the battery before removing or replacing any electrical components.**

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.

Recommended Fastener Torque Chart					
Inch Fasteners Grade 5 and Grade 8					
Size	Torque (ft-lb)		Size	Torque (ft-lb)	
	 Grade 5	 Grade 8		 Grade 5	 Grade 8
1/4-20	8.4	11.9	9/16-12	109	154
1/4-28	9.7	13.7	9/16-18	121	171
5/16-18	17.4	24.6	5/8-11	150	212
5/16-24	19.2	27.3	5/8-18	170	240
3/8-16	30.8	43.6	3/4-10	269	376
3/8-24	35.0	49.4	3/4-16	297	420
7/16-14	49.4	69.8	7/8-9	429	606
7/16-20	55.2	77.9	7/8-14	474	669
1/2-13	75.3	106.4	1-8	644	909
1/2-20	85.0	120.0	1-12	704	995
Metric Fasteners Class 8.8 and 10.9					
Size	Torque (ft-lb)		Size	Torque (ft-lb)	
	 Class 8.8	 Class 10.9		 Class 8.8	 Class 10.9
M6 x 1.00	7.7	11.1	M20 x 2.50	325	450
M8 x 1.25	19.5	26.9	M22 x 2.50	428	613
M10 x 1.50	38.5	53.3	M24 x 3.00	562	778
M12 x 1.75	67	93	M27 x 3.00	796	1139
M14 x 2.00	107	148	M30 x 3.50	1117	1545
M16 x 2.00	167	231	M33 x 3.50	1468	2101
M18 x 2.50	222	318	M36 x 4.00	1952	2701
These torque values apply to fasteners except those noted in the instructions.					

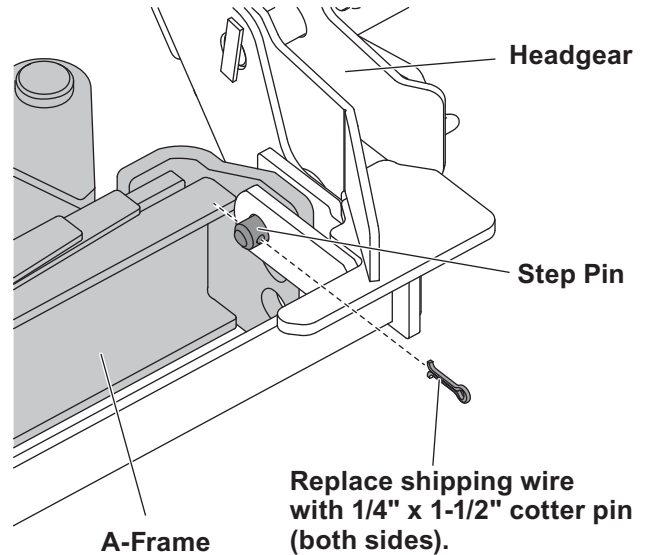
HEADGEAR AND A-FRAME

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

1. Set aside the blade guides and parts bag. The vehicle electrical harnesses and the Owner's Manual packet are in the bag with the headlamp box.
2. **HDX™ snowplows only:** Remove the stacking stops bolted to the pallet and set them aside. Certain snowplow configurations using the 55° blade attack angle require installation of stacking stops. (See "Stacking Stops – HDX Snowplows" in the Final Adjustments section.)
3. Remove the blocking and strapping that secure the headgear assembly to the pallet. Adjust the lift chain so that approximately half the chain is on either side of the lift arm link.
4. Remove the headgear assembly from the pallet so that the A-frame is resting on the ground.

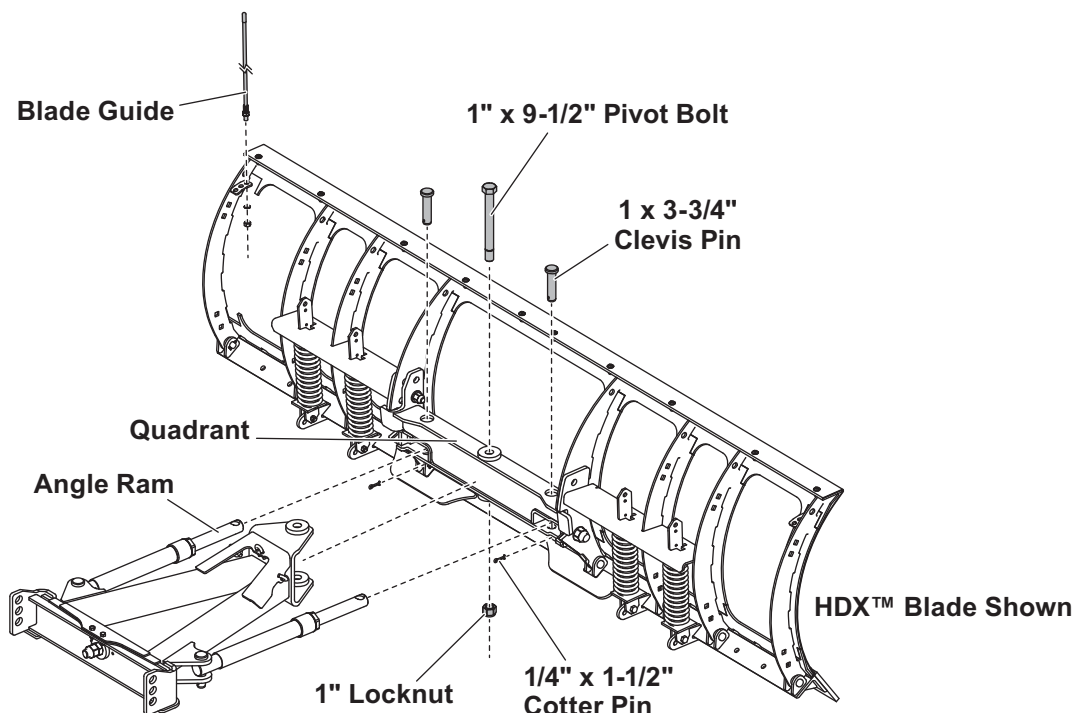
5. Inspect the step pins attaching the A-frame to the headgear to see whether they are secured with temporary shipping wires or cotter pins. **If the step pins are secured with shipping wires, replace the wires with 1/4" x 1-1/2" cotter pins from the parts bag.**

Leave the step pins inserted in the top A-frame position holes for now.

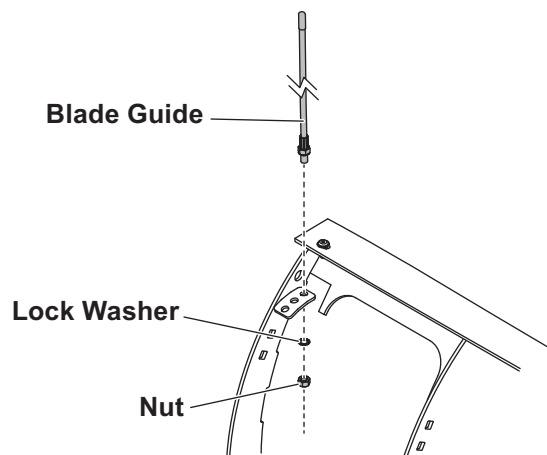
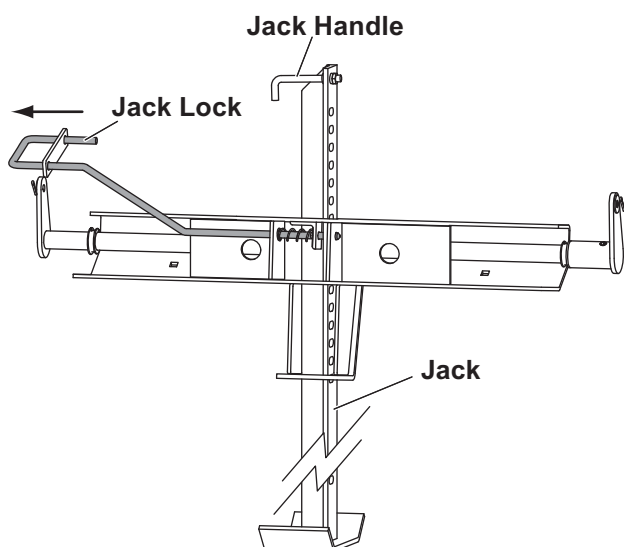


HDX A-frame Shown

A-FRAME TO BLADE ASSEMBLY



1. Align the pivot-bolt hole on the A-frame with the pivot-bolt hole on the blade.
2. Install the 1" x 9-1/2" pivot bolt from the top. Secure with a 1" locknut and tighten as much as possible while allowing the A-frame to pivot.
3. With the blade in the normal operating position, pull the jack lock and lower the jack leg to support the headgear. Release the jack lock to hold the jack in position.
4. Remove the protective packaging from the angle rams.
5. Align the angle ram rods with the angle ram holes on the blade (HD2™ blades) or quadrant (HDX blades) and attach them using two 1" x 3-3/4" clevis pins, installed from the top. Secure with 1/4" x 1-1/2" cotter pins.
6. Install the blade guides.



HEADLAMPS

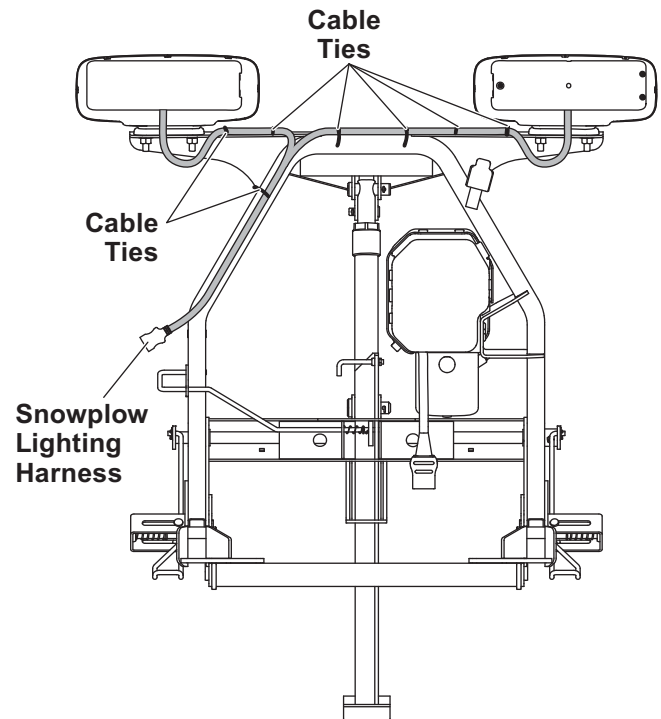
⚠ WARNING

Your vehicle must be equipped with snowplow headlamps and directional lights.

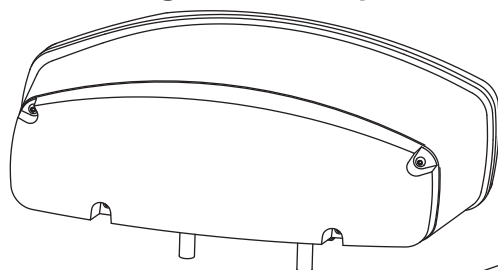
Headlamps, hardware, and instructions are found in the headlamp box.

1. Install the vehicle wiring according to the instructions provided.
2. With the driver- and passenger-side headlamps on the correct sides, set each headlamp and swivel into place on the headgear light bar.
3. Secure the headlamps with the correct hardware for the application as shown below. Inner and outer posts require different hardware. On LED headlamps, a rubber washer must be installed under the slotted holes. Hand tighten fasteners.
4. Connect the headlamp wires to the headlamps.
5. Aim the headlamps according to the Snowplow Headlamp Beam Aiming Instructions (Lit. No. 27769). For LED headlamps, tighten the fasteners to 22 ft-lb (30 N·m). For halogen headlamps, tighten the fasteners to 50 ft-lb (68 N·m).

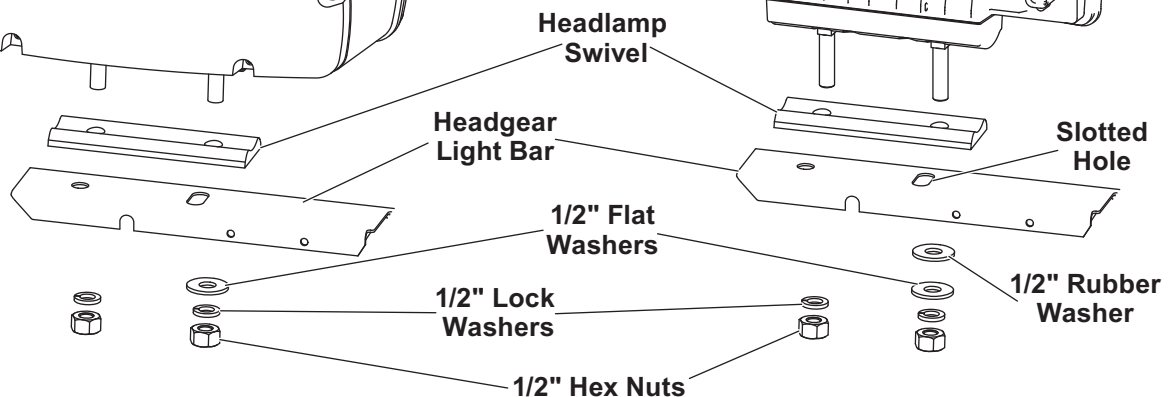
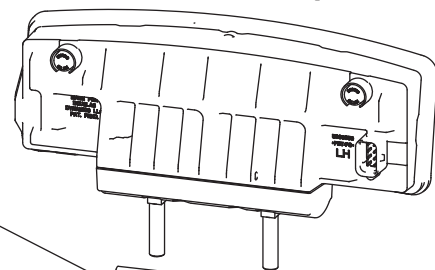
6. Secure the snowplow harnesses and wires to the headgear with cable ties as shown.



Halogen Headlamps



LED Headlamps



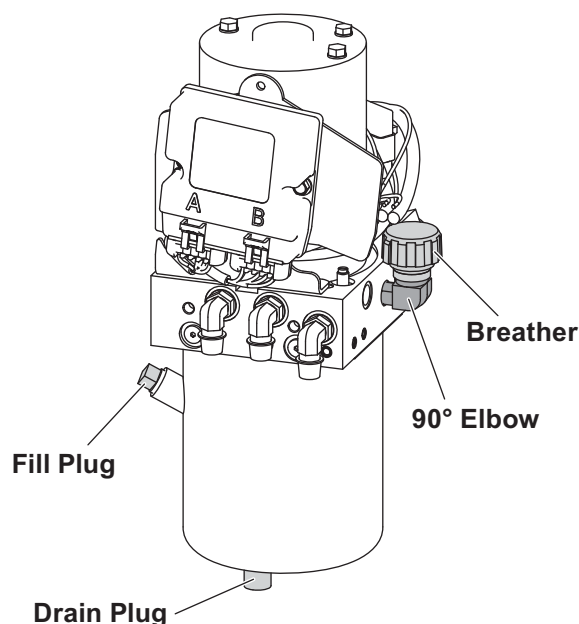
HYDRAULIC UNIT

⚠ WARNING

Keep 8' clear of the blade when it is being raised, lowered, or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

The HDX™ and HD2™ snowplow hydraulic units come from the factory pre-assembled, partially filled, and fully tested.

1. Remove the cover of the hydraulic unit.
2. Remove and discard the factory-installed pipe plug from the breather port. Install the 90° elbow into the port, with the elbow pointing up.



3. Install the breather into the elbow.
4. Replace the cover.
5. Attach the snowplow to the vehicle according to the instructions on the headgear.

⚠ 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.

6. Turn the control ON and completely angle the blade to the left and right several times. Raise and lower the snowplow several times. Activate the control FLOAT function and manually collapse the lift ram all the way. Turn the control OFF.

⚠ CAUTION

Do not mix different types of hydraulic fluid. Some fluids are not compatible and may cause performance problems and product damage.

7. Remove the fill plug and check the fluid level. With the lift ram fully retracted, the fluid level should reach the fill hole. If additional fluid is needed, fill the reservoir with FISHER® EZ Flow Hydraulic Fluid rated to -40°F (-40°C), or other fluid conforming to Military Specification MIL-H-5606 A, such as Mobil Aero HFA or Shell AeroShell® Fluid 4.

NOTE: Remove fill plug slowly to relieve any pressure in reservoir.

8. Replace and tighten the fill plug.

FLUID CAPACITY

- Insta-Act® Unit Reservoir 1-3/4 quarts
- Insta-Act System Total 2-3/8 to 2-3/4 quarts

HDX™ BLADE ATTACK ANGLE ADJUSTMENT

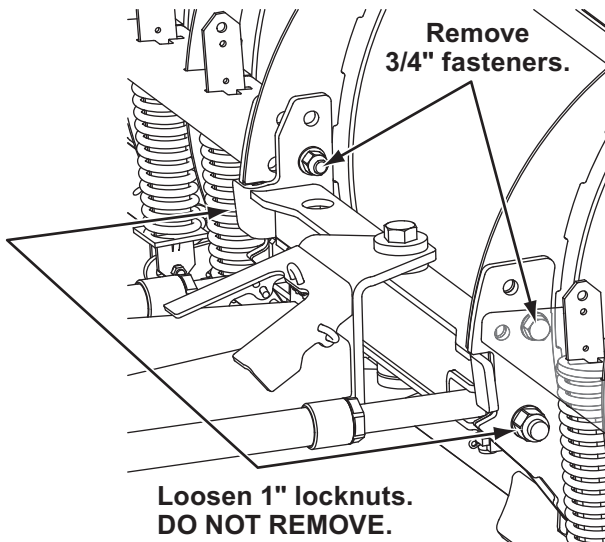
The HDX blade features a bolted connection between the quadrant and main blade that allows adjustment among three attack angles—55°, 65°, and 75°. It is factory set at 65°.

The snowplow does not need to be attached to the vehicle to perform this adjustment.

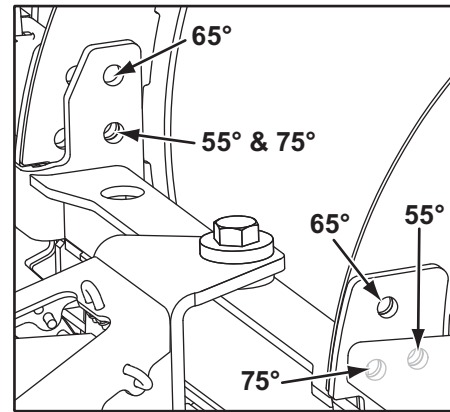
⚠ CAUTION

If the snowplow is not attached to the vehicle, lean the headgear forward. Failure to do so could result in the headgear shifting unexpectedly and causing personal injury.

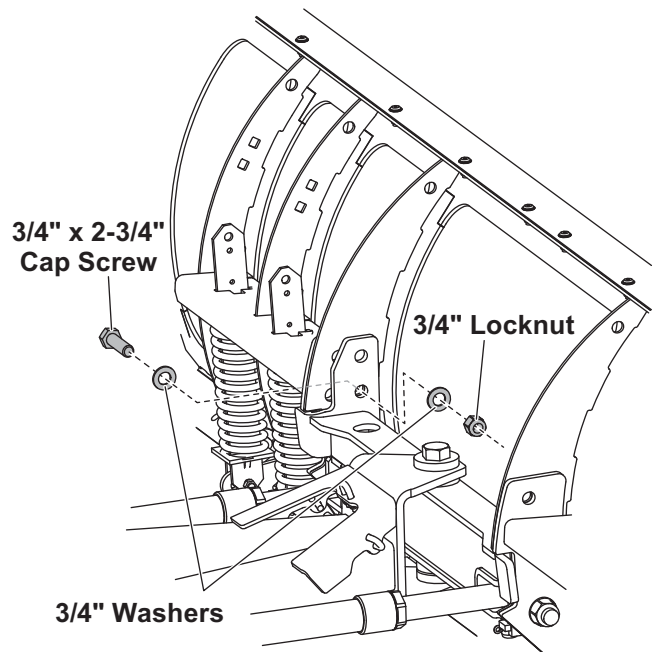
1. Loosen (DO NOT REMOVE) the lower quadrant 1" locknuts. Remove the upper quadrant 3/4" locknuts, 3/4" washers, and 3/4" x 2-3/4" cap screws.



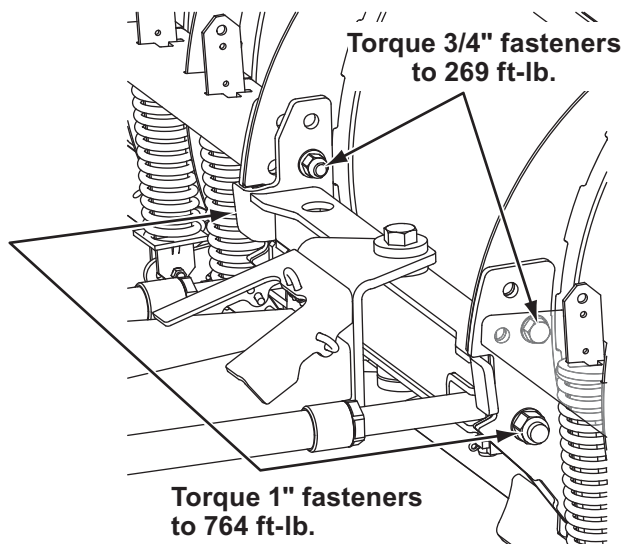
2. Align the desired attack angle holes in the quadrant and blade.



3. Reinstall the upper quadrant fasteners on both sides of the quadrant.



4. Torque the upper and lower fasteners as shown.

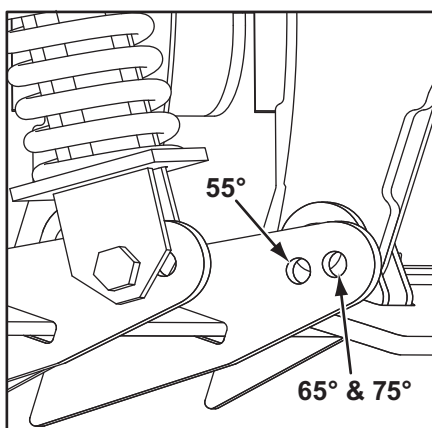


NOTE: The lower 1" locknuts must be torqued to 764 ft-lb and the upper 3/4" locknuts must be torqued to 269 ft-lb.

⚠ CAUTION

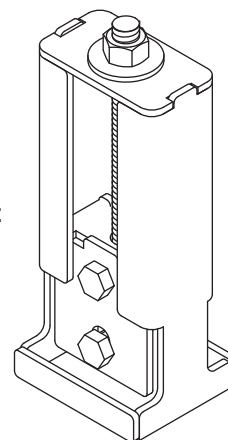
Servicing the trip springs without special tools and knowledge could result in personal injury. See your authorized outlet for service.

5. When the blade attack angle has been changed to or from 55°, the lower mounting position of the trip springs must be changed as shown below.



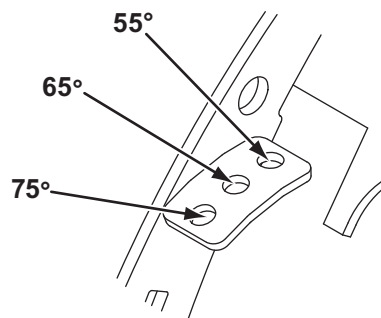
A special spring replacement tool (PN 20043-1) must be used to safely make this adjustment. **NEVER ATTEMPT SPRING REMOVAL WITHOUT THE SPECIAL TOOL.** Follow the instructions packed with the spring replacement tool.

Spring Replacement Tool (PN 20043-1)



NOTE: If the springs are not adjusted to match the attack angle setting, blade damage may occur.

6. Install the blade guides in the mounting holes that match the selected blade attack angle.



Accessories Adjustments

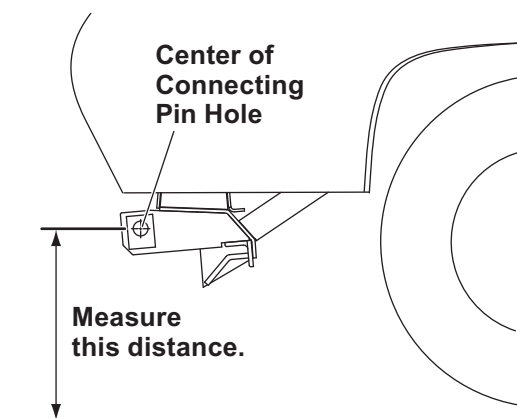
When the blade attack angle is changed, accessories such as rubber cutting edge, back drag edge, blade wings, and shoes must also be adjusted. Follow the instructions supplied in the accessory kit(s).

FINAL ADJUSTMENTS

Leveling the A-Frame

With the snowplow attached to a properly ballasted vehicle and the blade lowered to the ground, the A-frame should be parallel with the ground. Three attachment holes are provided to allow the A-frame position to be adjusted.

1. Measure the distance from the center of the connecting pin hole to the ground.

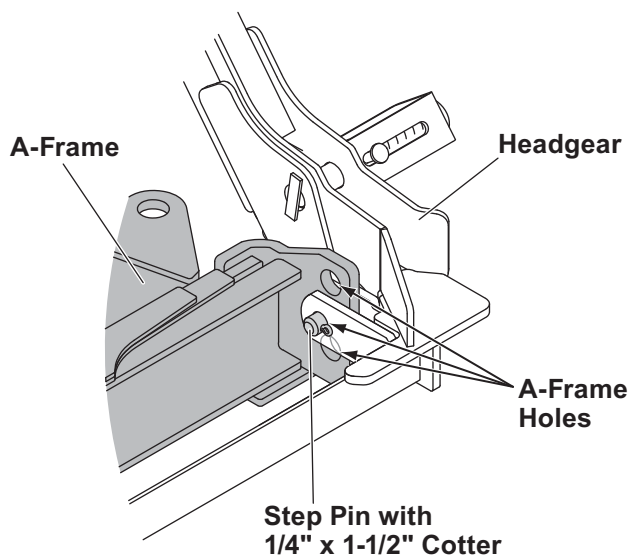


2. Refer to the appropriate table to verify whether the headgear is connected to the correct A-frame hole. If it is not, remove the step pins, adjust the A-frame position, reinstall the step pins, and insert 1/4" x 1-1/2" cotter pins.

HD2™ Snowplow	
Mount Height (in)	A-Frame Hole
15.85–17.35	Top
14.35–15.85	Middle
12.85–14.35	Bottom

HDX™ Snowplow	
Mount Height (in)	A-Frame Hole
55° Attack Angle	
13.95–15.45	Top
12.45–13.95	Middle
10.95–12.45	Bottom
65° Attack Angle	
15.75–17.25	Top
14.25–15.75	Middle
12.75–14.25	Bottom
75° Attack Angle	
16.75–18.25	Top
15.25–16.75	Middle
13.75–15.25	Bottom

If the mount height falls outside the ranges shown, the specified attack angle is not recommended for that vehicle.



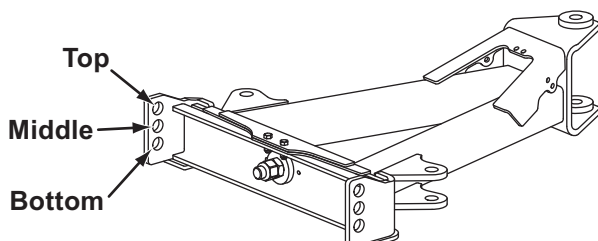
HDX A-Frame Shown

Stacking Stops – HDX™ Snowplow

Stacking stops are required for all installations using the 55° blade attack angle; however, they are used differently depending on what A-frame hole position is being used.

Stacking stops are also required for installations using the 65° blade attack angle in the bottom position.

Refer to the table below to determine whether stacking stops are required and which width to use.

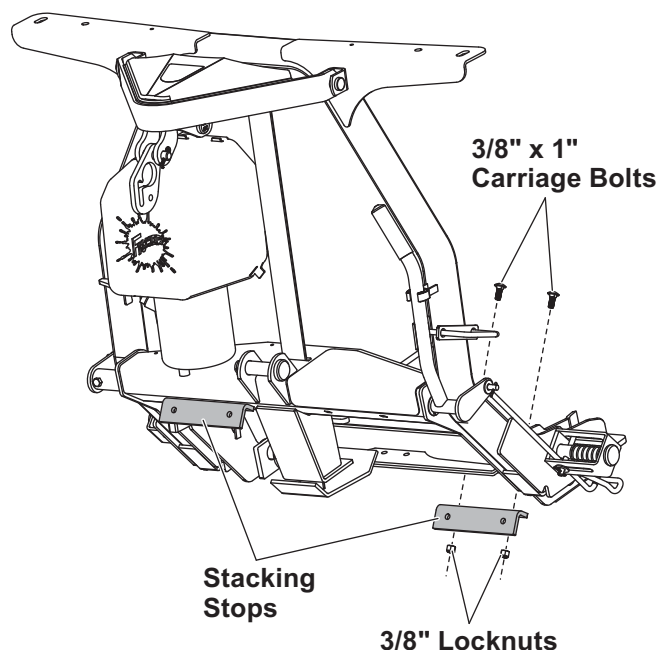


Attack Angle	A-Frame Hole Position	Stacking Stops Required?	Stacking Stop Width
55°	Top	YES	1.8750"
	Middle		
	Bottom		1.3125"
65°	Top	NO	—
	Middle		
	Bottom	YES	1.3125"
75°	All	NO	—

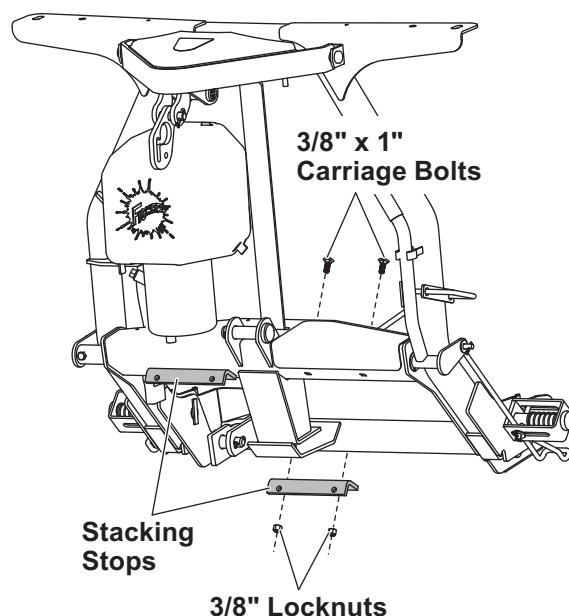
NOTE: Failure to install stacking stops when required will result in blade and lift arm damage.

If the current snowplow configuration does not require stacking stops, retain the stacking stops and fasteners for possible future use when the blade attack angle is changed.

- **When using the 55° blade attack angle in the top and middle positions:** Install the stacking stops to the cross channel of the headgear using four 3/8" x 1" carriage bolts and 3/8" locknuts as shown. Tighten the locknuts to 31 ft-lb.



- **When using the 55° blade attack angle in the bottom position, or the 65° blade attack angle in the bottom position:** Install the stacking stops to the cross channel of the headgear using four 3/8" x 1" carriage bolts and 3/8" locknuts as shown. Tighten the locknuts to 31 ft-lb.

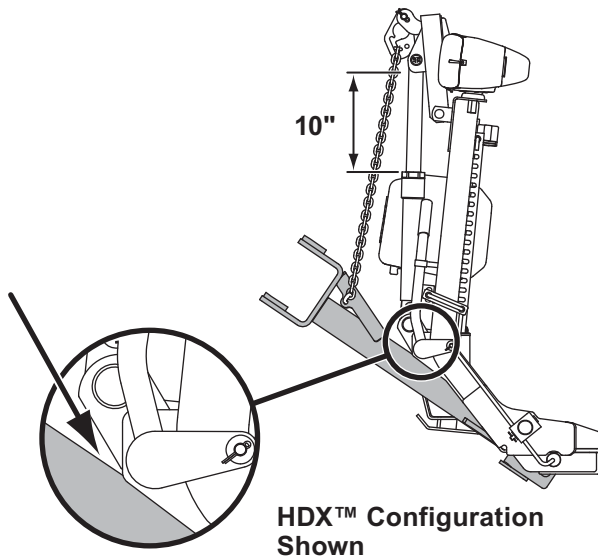


Adjusting Lift Chain

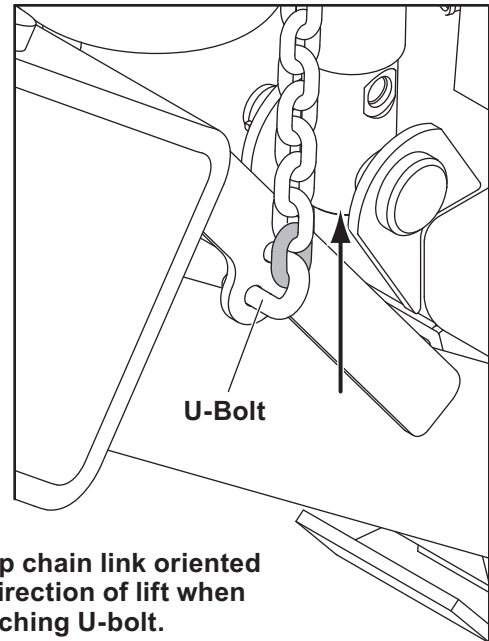
⚠ WARNING

Keep 8' clear of the blade when it is being raised, lowered, or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

1. Remove and retain the passenger-side lift chain U-bolt.
2. Adjust the length of the lift chain so that the A-frame hits the lower portion of the headgear or the stacking stops when the lift ram is fully extended (10").



3. Reattach the loose end of the lift chain to the passenger's side of the A-frame with the retained U-bolt and locknuts, being sure to maintain any length adjustment made in Step 2.
4. Fully tighten the U-bolts, then loosen them slightly. The chain link should pivot freely in the U-bolt.



Adjusting Lift Chain Spring

The lift chain spring ensures proper operation of the snowplow mounting system by providing slack in the lift chain after the blade is lowered.

HD2™ and HDX™ snowplows come with the lift chain spring connecting link ("quick link") factory installed in the 14th link up from the driver-side lift chain U-bolt.

Due to variations in the vehicle frame height, it may be necessary to change the spring location by adjusting the slack in the lift chain to ensure optimal performance.

With the snowplow attached to a properly ballasted vehicle, make one of the following adjustments:

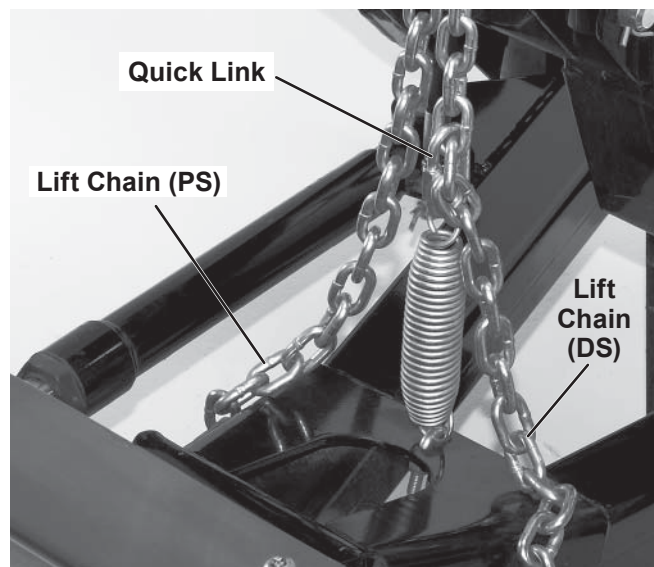
If there is not enough slack in the lift chain:

Adjust the quick link up one link from the factory setting.

If there is too much slack in the lift chain:

Adjust the quick link down one link from the factory setting.

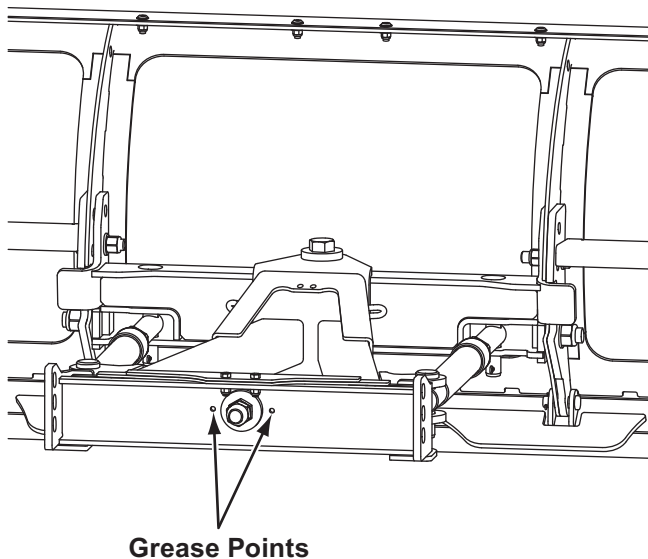
Moving the connecting chain link more than one chain link higher or lower than the original factory setting is not recommended.



GREASING HDX™ PIVOT BEAM

Using a rubber-tipped seal-off coupler, apply good quality multipurpose grease through the two grease points in the rear of the pivot beam.

Grease the pivot beam at the beginning of the snowplow season. Reapply as needed during the season and before putting the snowplow in storage.



VEHICLE LIGHTING CHECK

1. Verify the operation of all vehicle front lighting prior to connecting the snowplow harnesses.
2. Check the operation of the snowplow lights with snowplow mounted to vehicle and all harnesses connected.

a. Turn Signals and Parking Lamps

Parking lamps ON:

Both vehicle and snowplow parking lamps should be ON at the same time.

Driver-side turn signal ON:

Both vehicle and snowplow driver-side turn signal lamps should flash at the same time.

Passenger-side turn signal ON:

Both vehicle and snowplow passenger-side turn signal lamps should flash at the same time.

b. Headlamps

Move the vehicle headlamp switch to the "ON" position. Connecting and disconnecting the snowplow lighting harness plug should switch the lights between vehicle and snowplow as follows:

Snowplow lighting harness DISCONNECTED:

Vehicle headlamps should be ON.
Snowplow headlamps should be OFF.

Snowplow lighting harness CONNECTED:

Snowplow headlamps should be ON.
Vehicle headlamps should be OFF.

The dimmer switch should toggle headlamps between high and low beams. The high beam indicator on the dash should light when headlamps are placed in high beam.

c. Daytime Running Lamps (DRLs)

An operational check of the vehicle and snowplow DRLs will depend on the vehicle model, vehicle DRL system, and type of Isolation Module installed. Due to the variations in the OEM DRL systems and the different Isolation Module options available, checking the functionality of the snowplow DRLs will depend on the type of module installed on the vehicle.

With the headlamp switch OFF, activate the vehicle DRLs.

Snowplow lighting harness DISCONNECTED:

- Vehicle DRLs should be ON.
- Snowplow headlamps should be OFF.

Snowplow lighting harness CONNECTED and vehicle in DRL mode: Check snowplow DRL function per the type of Isolation Module installed.

• **Green Label DRL Module (PN 29070-1)**

On vehicles equipped with DRLs integrated into the vehicle headlamps, this module will transfer the vehicle headlamp DRLs to the snowplow (turns OFF vehicle DRLs).

On vehicles equipped with dedicated DRL bulbs or vehicles using the turn signals as DRLs, this module will not turn OFF the vehicle bulbs. While the vehicle is in the DRL mode, this module will illuminate the snowplow lighting turn signal filaments.

• **Blue Label Module (PN 29760-2)**

Snowplow not attached to vehicle: System is inactive. Vehicle lighting system functions normally.

Snowplow attached to vehicle: System is inactive until either the switched accessory wire or the vehicle parking lights are activated.

On vehicles equipped with DRLs integrated into the vehicle headlamps: This module will transfer the vehicle headlamp DRLs to the snowplow (turns OFF vehicle DRLs).

On vehicles using the turn signals as DRLs: This module will not turn OFF the vehicle bulbs. While the vehicle is in the DRL mode, this module will illuminate the snowplow lighting turn signal filaments.

d. Control Power Indicator Light

The snowplow plugs **do** need to be connected to the vehicle harness connectors.

The control power indicator light should light whenever the control ON/OFF switch and the ignition (key) switches are both in the "ON" position.

⚠ CAUTION

On 2-plug electrical systems, plug covers shall be used whenever snowplow is disconnected. Vehicle battery cable is 12V unfused source.

3. Connect all snowplow and vehicle harnesses. Raise the snowplow and aim the snowplow headlamps according to the Snowplow Headlamp Beam Aiming Instructions (Lit. No. 27769) included with the headlamps, and any state or local regulations.
4. Check the aim of the vehicle headlamps with the snowplow removed.
5. When the snowplow is removed from the vehicle, install plug covers on the vehicle battery cable and lighting harness. Insert the snowplow battery cable and lighting harness into the cable boot on the snowplow.

OWNER'S MANUAL PACKET

If the completed snowplow will be delivered immediately, the Owner's Manual should be reviewed with and given to the purchaser according to the snowplow checklist.

If the snowplow is completed prior to delivery to the purchaser, attach the Owner's Manual packet to the electrical cable of the cab control for safekeeping.

**90750, 90800, 90850, 90900, 93800, 93900, 97200, 97200-1, 97200-3,
97250(CH), 97250-1(CH), 97250-3(CH), 97300, 97300-1, 97300-3**

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