



BOSS SNOWPLOW | 2014

THE BOSS



Northern Star Industries (NSI)

- **Located In Iron Mountain, MI**
 - NSI has two Divisions
 1. Systems Control
 2. BOSS Snowplow

Systems Control Facility



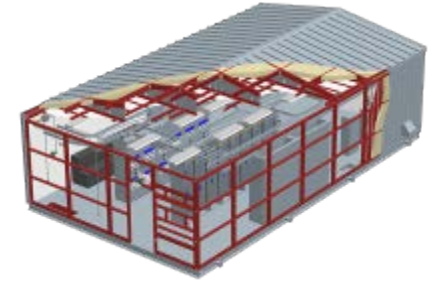
100,000 Sq. Ft. vertically integrated control building manufacturing facility.

100,000 Sq. Ft. vertically integrated control & relay, SCADA, RTU & communication panel manufacturing.

SYSTEMS CONTROL: What We Do



← **Engineer & Design** to →
meet Customers Exact Needs



Control Panels, Control Houses, Outside Equipment Enclosures

Control Panels



Fabricate In House

Integrate & Wire

Outside Enclosures



← **Deliver & install "Turn Key"** →

To Customer Site





BOSS Snowplow Facility





BOSS Snowplow – Product Categories





BOSS – Product Breadth

1. Snow Removal Products

- Truck-mounted snowplows
 - Straight and “V” configurations
 - From 7’ to 10’

2. Ice Control Products

- Tailgate mounted and V-BOX Spreaders
 - Ice melters, sand, salt.
 - From 3 cu. ft. to 2 cu. yd. capacity.

3. UTV/ Mid UTV/ATV Products

- Straight Configurations for UTV/Mid UTV/ATV
- V blade for full sized UTVs
- Fully hydraulic, premium products intended for contractors.

4. Commercial Products

- Box plows
 - Skid steer, backhoe, loader plows
 - Sizes from 8’ to 16’



New Truck Plows for 2014

BOSS

STAINLESS

**POLISHED
PERFORMANCE**

SUPER DUTY STRAIGHT-BLADES





New Stainless Straight Blade Models



- **Super Duty Trip Edge**
 - 7'6"
 - 8'
 - 9'
- **Super Duty Full Trip**
 - 8'
 - 9'
- **Same great performance, with the added attraction of stainless steel.**



New Poly Straight Blade

- **7'6" Super Duty Poly**
 - For trucks that can carry a heavier 7'6" straight blade

UTV & ATV Products | 2014





New Mid-Sized UTV Offerings



- **5' Plow for Mid-Sized UTVs**
 - 5' Poly Straight Blade (same as ATV plow)
 - Quick Hitch attachment system
 - Controller is different from ATV controller (SmartTouch Pad Controller)



4' FULLY HYDRAULIC ATV PLOW



- **48" Poly Straight Blade**
 - STB13759 (Blade Crate)
 - STB13565B (Plow Box)

- To better conquer sidewalk snow removal we are introducing a 48" ATV model for use with ATVs only:
- Fully hydraulic operation – no winches, pullies or handles for lifting or angling
- Quick attach system for easy on and off before and after snow events.



New Undercarriages for ATV/UTV

ATV:

- **Honda Foreman/Rancher '14+**
- **Suzuki King Quad '05+**
- **Additional Models Coming Soon**

Mid-Sized UTV:

- **Can-Am Commander '11+**
- **Polaris RZR 570/800 '08+**
- **Yamaha Rhino '04-13**
- **John Deere 550 XUV '12+**
- **Kubota 500 '12+**

Full Sized UTV

- **Kubota RTV**



ATV/UTV Application Chart

ATV Undercarriages	Part #
2006-2013 Honda Foreman/Rubicon	LTA13590
2009+ Polaris 550/850 Sportsman	LTA13534
2009+ Polaris 400/500/800 Sportsman	LTA13754
2012+ Yamaha Grizzly 550/700	LTA13575
2014+ Honda Rancher/Foreman	*LTA13810*
2005+ Suzuki Kingquad	*LTA13690*
ATV Plow Box	Part #
Straight Blade ATV/UTV Plow Box	STB13565B
ATV Blade Crate	Part #
4' Poly Straight Blade Crate	STB13759
5' Poly Straight Blade Crate	STB13567
ATV Control Kits	Part #
Control Kit, Switchbox, ATV/UTV	MSC13700
UTV Mid-Size Undercarriages	Part #
2012+ John Deere Gator XUV, 550	LTA12740
2004-2013 Yamaha Rhino	LTA12761
2008+ Polaris RZR 570/800	LTA13790
2008+ Kubota 400/500	LTA13820
Can-Am Commander	LTA12770
UTV Mid-Size Plow Box	Part #
Straight Blade ATV/UTV Plow Box	STB13565B
UTV Mid-Size Blade Crate	Part #
5' Poly Straight Blade Crate	STB13567
UTV Mid-Size Control Kit	Part #
Control Kit, Handheld, Mid-Size UTV	MSC13699

*NOTE: HIGHLIGHTED UNDERCARRIAGES ARE DUE TO RELEASE SUMMER OF 2014.

UTV Undercarriages	Part #
Bobcat	
2011 & Newer 3400	LTA12710
2007-2010 2200, 2300, 3400, 4x4	LTA12680
Case IH	
2008 & Newer Scout, Scout XL	LTA12680
Club Car	
2007 & Newer XRT	LTA12680
Cub Cadet	
2007 & Newer Volunteer	LTA12720
Honda	
2010 & Newer Big Red	LTA12670
Husqvarna	
2007 & Newer HUV 4421, 4421 XL	LTA12680
John Deere	
2011 & Newer XUV	LTA12640
2008-2010 XUV	LTA12590
Kawasaki	
2004 & Newer Mule	LTA12580
Kubota	
2014 & Newer X900, X1100, X1120	LTA12560B
2008 & Newer 1100 RTV	LTA12660
2004 & Newer 900, 1140 RTV	LTA12560B
New Holland	
2008 & Newer Rustler 120, 125	LTA12680
Polaris	
2012 & Newer Ranger XP 900	LTA12650
2009 & Newer Ranger	LTA12520
2005-2008 Ranger	LTA12500
UTV Plow Box	Part #
V-Blade UTV Plow Box	MSC12060
Straight Blade UTV Plow Box	STB12070
UTV Blade Crate	Part #
6'6" V-Blade UTV	MSC12480
6' Straight Blade UTV	STB12470
UTV Control Kits	Part #
SmartTouch2 Handheld V-Blade UTV	MSC12075
SmartTouch2 Handheld Straight Blade UTV	STB12065

BOX PLOWS | 2014





NEW BOX PLOWS

14' & 16' LDR Box Plows



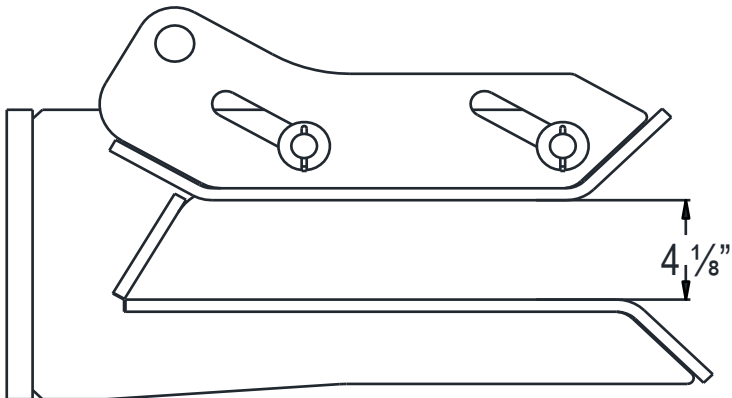
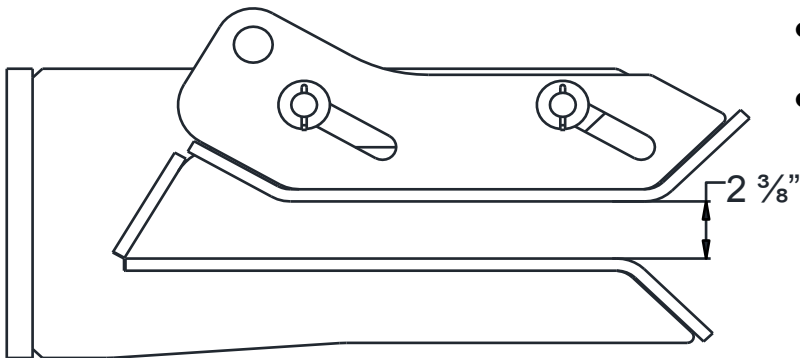
- LDR 14
- LDR 16
 - New larger sized box plows feature self-adjusting wings and segmented trip-edge design for maximum plowing efficiency, performance & ease of use.
 - Heavy Duty wing shoes provide excellent wear resistance for long-term durability.
 - All new hitch-fork system adjusts to any size loader bucket for ease of use.
 - 49" high moldboard for maximum snow holding and pushing performance.



NEW BOX PLOWS

Adjustable Fork Assembly

- Adjustable opening to compensate for different thickness of bucket .
- Offered on the 14' & 16' LDR Box plows
- 2-3/8" Min
- 4-1/8" Max





NEW BOX PLOWS

Product Name Changes

- B8 and B10 are now SK8 and SK10
 - “SK” stands for skidsteer
- BX12 is now BH12
 - “BH” stands for Backhoe
- Names correspond with tractor that plow is designed for – and will make it easier for us to name additional models that are on the product plan.

Ice Control Products | 2014





NEW TGS300 SPREADER

TGS 300

- TGS11300 – 3 cu/ft Tailgate Spreader
- TGS11320 – 1-1/4" Receiver, Slide-In Hitch/Control Kit
- TGS11321 – 2" Receiver, Slide-In Hitch/Control Kit
 - 200 lb. capacity for SUV's & Light Duty Trucks.
 - Same controller and truckside harness as the TGS600 & TGS1100.
 - Hard poly cover for weather protection.
 - High torque, 12-volt DC motor for reliability and durability. (SAME AS 600 & 1100)
 - Designed to spread dry, free-flowing, de-icing materials (not sand).
 - Attachment hitch built to fit either a 1.25" (Class II hitch) or a 2" (Class III hitch and up).
 - Specify hitch needs when ordering
 - Only available with the slide-in mount.





TGS Spreaders

TGS 600: 6 cu ft, 400 lb capacity

TGS 1100: 11 Cu ft, 800 lb capacity

- Spread salt, deicers
- Adjustable feed gates
- Variable speed controls
- 12" diameter poly spinners
- Adjustable material deflectors



TGS 800: 8 cu ft, 780 lb capacity

- Spread salt, deicers and sand
- 12-volt, high torque feed paddle motor
- Swing away Spinner Assembly
- Adjustable feed gates
- Variable speed controls
- 12" diameter poly spinners
- Adjustable material deflectors



RT3 Attachment System

- Easily roll the TGS on and off the truck
- Available for 600, 800, 1100 models (not for TGS300)

NEW UNDERCARRIAGES | 2014





NEW TRUCK UNDERCARRIAGES

New Undercarriage Roundup:

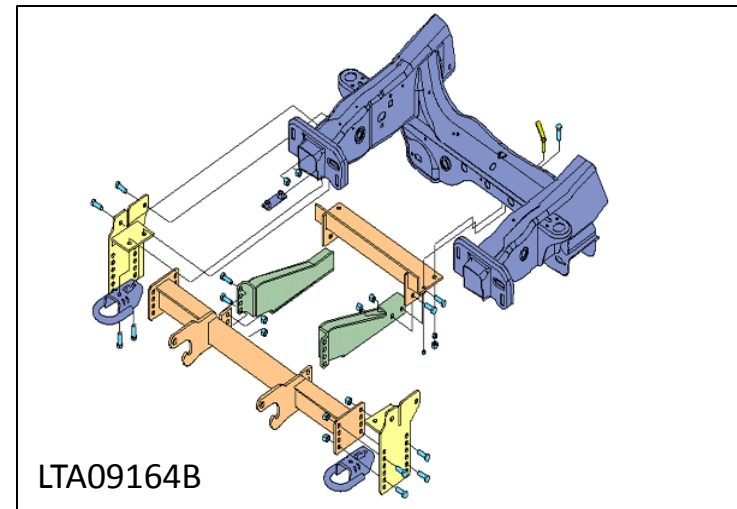
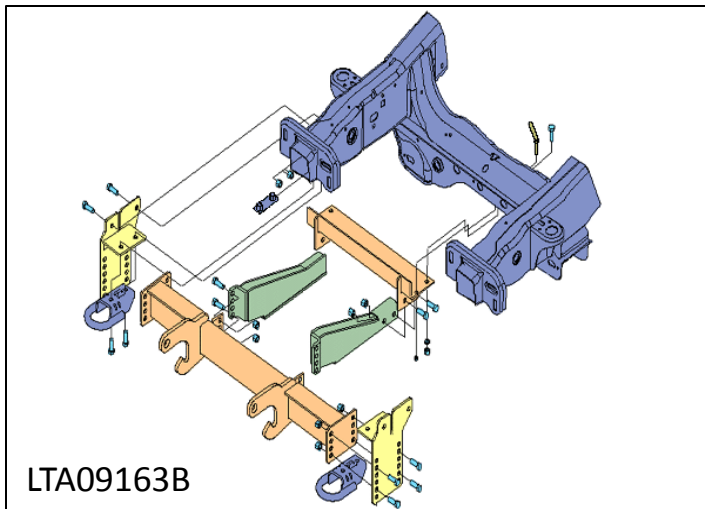
- **LTA09163B & LTA09164B - Ford F150 2009 & Newer**
- **LTA09001B & LTA09002B- Chevy/GMC 1500 2007 & Newer**
- **LTA09201B- Chevy/GMC 2500 & 3500 2011 & Newer**
- **LTA09250 & LTA09285-2013 & Newer TerraStar**
- **LTA06400- Ford F650/750 2000-2015 & DuraStar 2002+**
- **LTA06350 – 2009 & Newer Nissan Frontier (Sport Duty only)**



NEW TRUCK UNDERCARRIAGE

LTA09163B & LTA09164B - Ford F150 2009 & Newer

- The LTA09163 & LTA09164 will change to a 'B' revision.
- This change was made due to differences in the 2015 F150.
- These 'B' kits will fit back to all 2009 & newer F150.



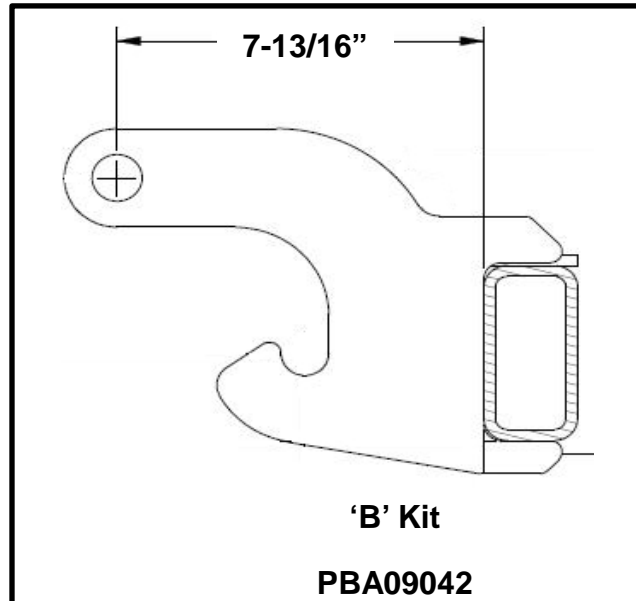
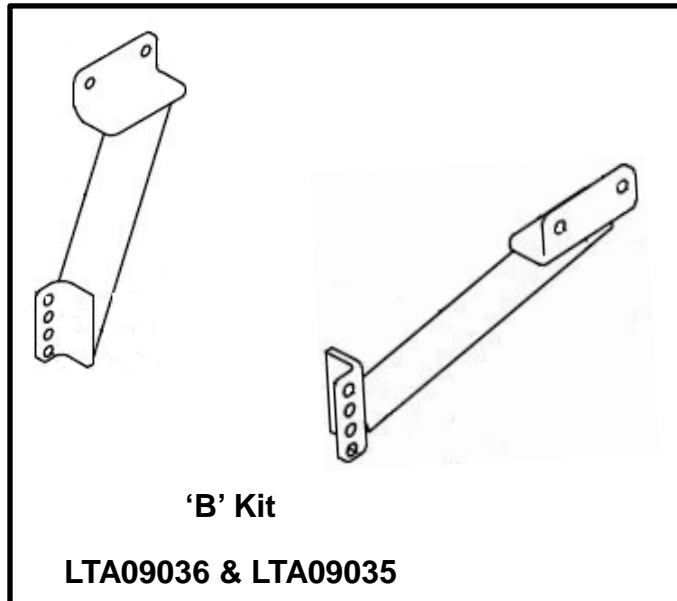


NEW TRUCK UNDERCARRIAGE

LTA09001B & LTA09002B- Chevy/GMC 1500 2007 & Newer

- Due to changes in the 2014 Chevy/GMC 1500, the undercarriage changes to the 'B' revision.
- The 'B' revision will fit all 2007 & Newer Chevy/GMC 1500.
- The angle brackets and pushbeam have changed and been given new part numbers.
- The attachment hole on the pushbeam has been moved forward by 1" to provide bumper clearance.

NOTE: Headlight adapter **MSC09044** will be used on all 2015 & Newer Chevy/GMC 2500 & 3500



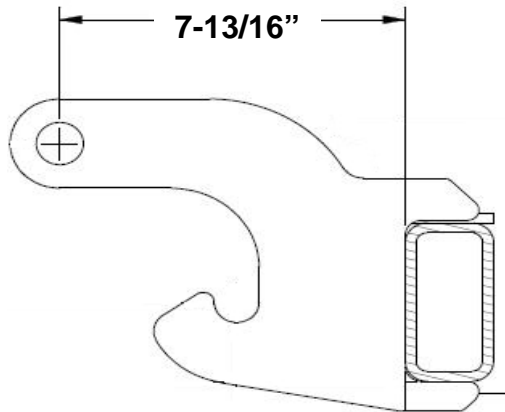


NEW TRUCK UNDERCARRIAGE

LTA09201B- Chevy/GMC 2500 & 3500 2011 & Newer

- Due to changes in the 2015 Chevy/GMC 2500 & 3500, the undercarriage changes to the 'B' revision.
- The 'B' revision will fit all 2011 & Newer Chevy/GMC 2500 & 3500.
- The attachment hole on the pushbeam has been moved forward by 1" to provide bumper clearance, but the part number will remain the same.
- SV109

NOTE: Headlight adapter **MSC09044** will be used on all 2015 & Newer Chevy/GMC 2500 & 3500



'B' Kit

PBA04373



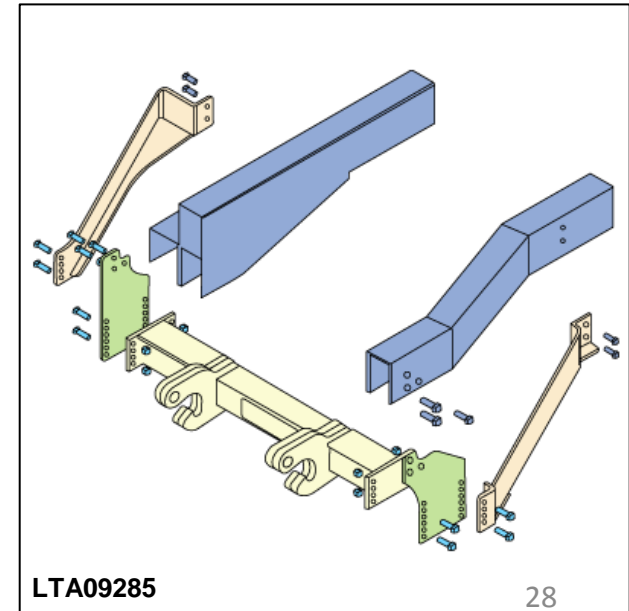
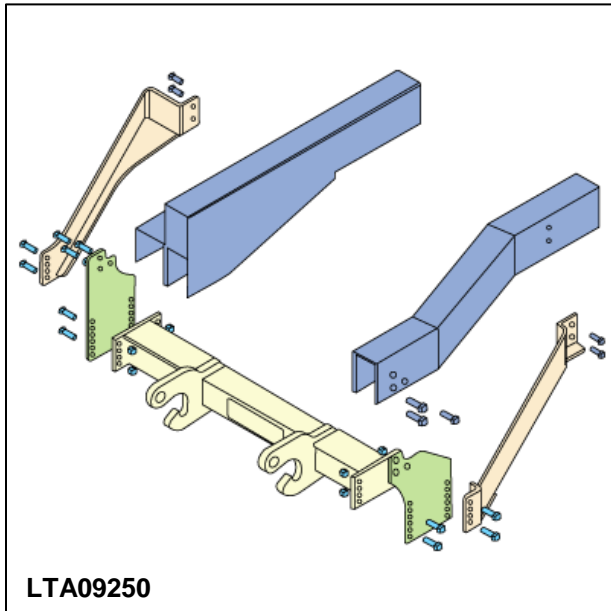


NEW TRUCK UNDERCARRIAGE

LTA09250 & LTA09285-2013 & Newer TerraStar

- The LTA09250 connects to all Super Duty, Power-VXT & Power-VDXT plows.
- The LTA09285 connects to either the 10' STR Heavy Duty or the 10' Power-VDXT
- These undercarriages come in two boxes. One box contains all the Pushbeam Support Plates and hardware and is universal between the two. The other box contains the plow specific pushbeam.

NOTE: Headlight adapter **MSC06428** will be required for all 2006 & newer DuraStar and TerraStar





NEW TRUCK UNDERCARRIAGE

LTA06400- Ford F650/750 2000-2015 & DuraStar 2002+

- This is a 10' undercarriage only.
- Comes in two boxes.

NOTE: Headlight adapter **MSC06428** will be required for all 2006 & newer DuraStar and TerraStar. The headlight adapter for the Ford is in development.

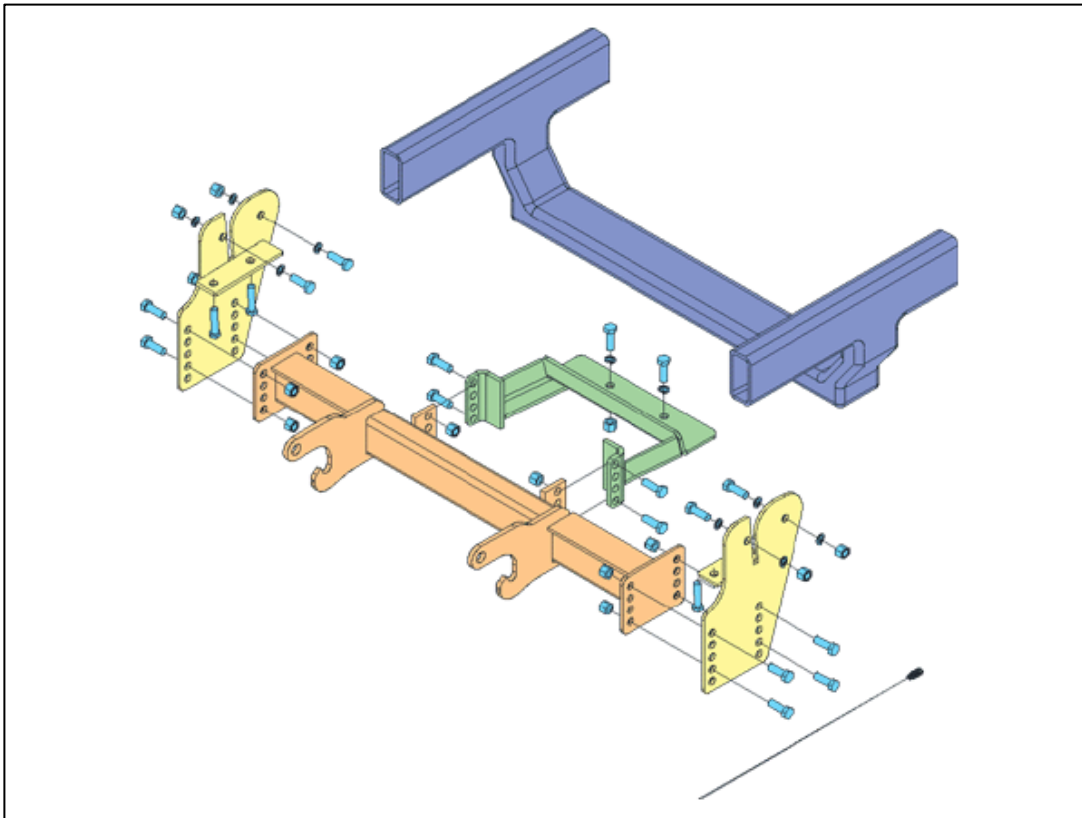




NEW TRUCK UNDERCARRIAGE

LTA06350 – 2009 & Newer Nissan Frontier

- The LTA06350 is a Sport Duty only undercarriage.
- No headlight adapter required.



© izmo cars

PRODUCT CHANGES | 2014

BOSS



PRODUCT CHANGES

ATV Plow Box Revised to 'B'

- The STB13565 ATV Plow Box has been revised to STB13565**B**.
- The '**B**' revision allows this plow box to be connected to Mid-Size UTV's.
- This Plow Box is used with either the 4' or 5' Poly Straight Blade plows.
- The Control Kit is no longer included with the Plow Box and will need to be purchased separately.
 - MSC13699-Handheld Control Kit, ATV/UTV, STB
 - MSC13700-Switchbox Control Kit, ATV/UTV, STB

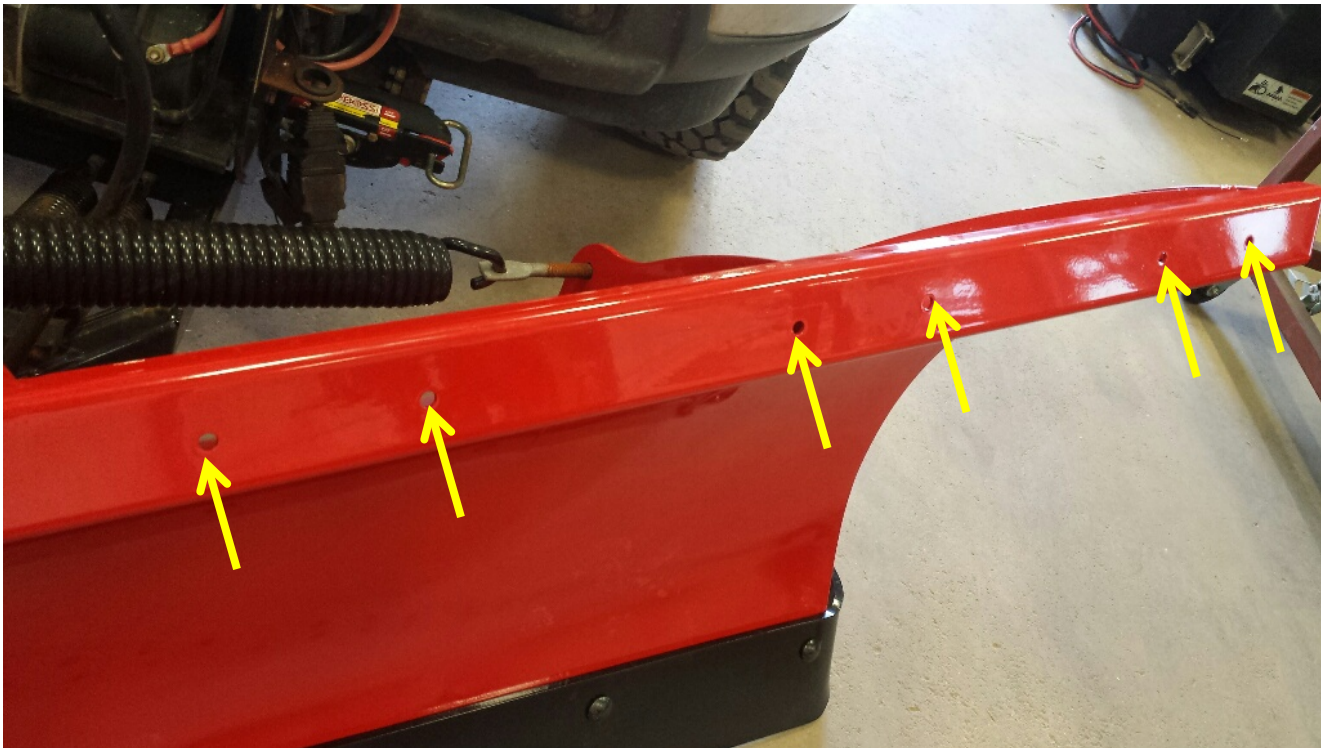




PRODUCT CHANGES

Snow Deflector Holes Pre-Drilled

- Pre-drilled holes for the Snow Deflector have been added to all Standard Duty, Super Duty, Trip-Edge, Power-V XT and Power-V DXT blades.
- The metal straps in the Snow Deflector Kits are also pre-drilled.





PRODUCT CHANGES

RT3 Coupler Spring Release Levers

- Design change to the RT3 Coupler Spring Release Levers.
- There is no longer a Passenger side and Driver side.
- Part# MSC04676 is used on both the PS & DR.





PRODUCT CHANGES

HDW01744 – Spade Bolts

- Design change to the spade bolts that retain the wing return springs.
- Change from spade bolt to eye bolt.
- Part number remains the same and come in a set of 2.





PRODUCT CHANGES

Plow Models Discontinued

- After feedback from the field and the release of new product offerings, we are discontinuing the following products:
 - MSC09907B** - 7'6" Power V Plow (Flat Top)
 - MSC09908B** - 8'2" Power V Plow (Flat Top)
 - MSC09909B** - 9'2" Power V Plow (Flat Top)
 - STB03262** - 7'6" Standard Duty Poly (Straight Blade)
 - MSC15000B** - Plow Box, V RT3, SH2 (Power V Flat Top Plow Box)
 - **NOTE:** We will no longer offer this non-SmartLock plow box. Both the Power-V XT and Power-V DXT are priced including SmartLock Cylinders and should be sold as such.

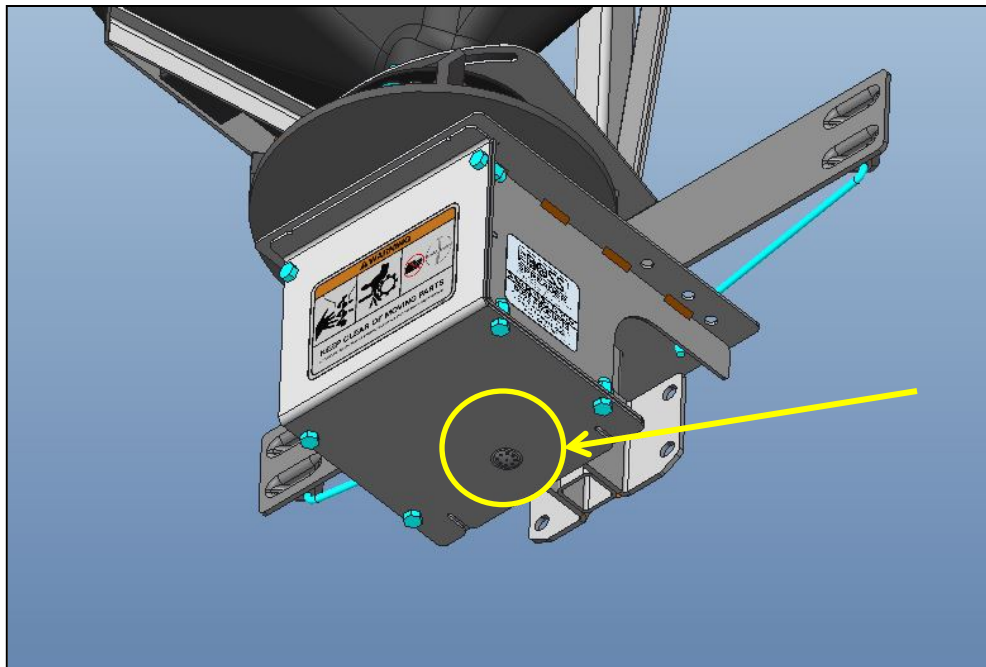




PRODUCT CHANGES

Drain Hole Added to TGS Motor Housing

- To reduce moisture build up and corrosion in the motor housing, a drain hole has been added to the motor housing on the TGS line of spreaders.



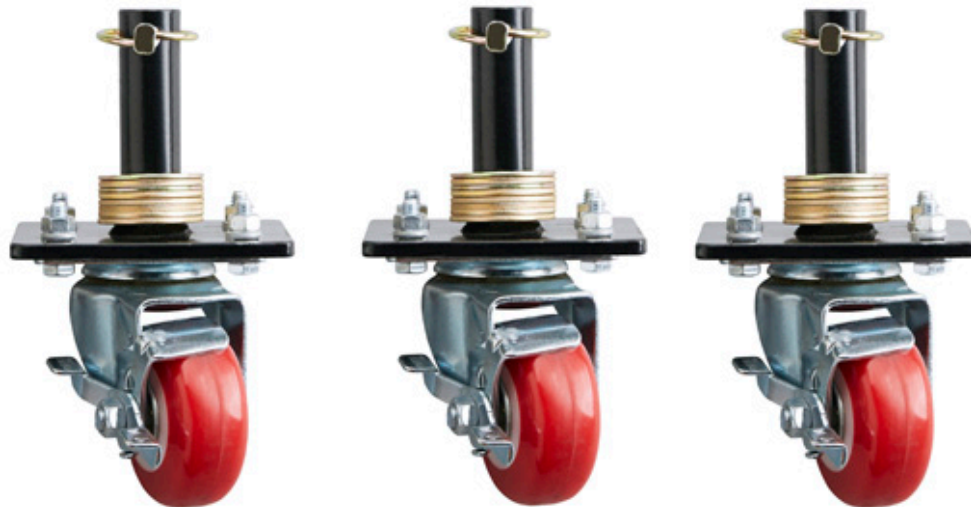
New Accessories | 2014

BOSS



MSC09235 UTV V-Plow Caster Wheel Kit

- **Allows you to more easily move the plow in storage.**
- **Also useful for service areas that are limited on space.**

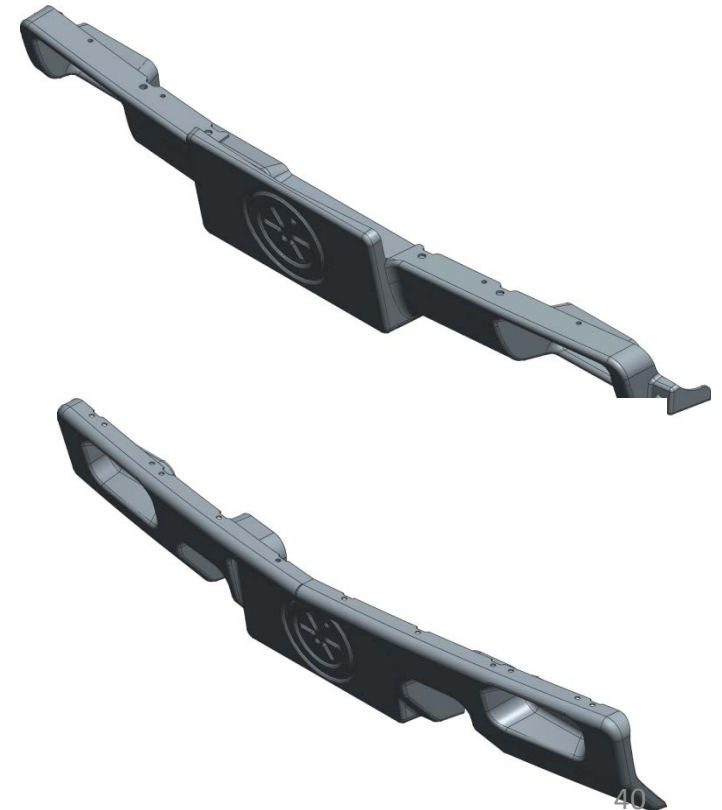




Chevy Bumper Trim

Eliminates the need to cut the lower valance/bumper on Chevy trucks, BOSS has designed two poly Bumper Trim options:

- **MSC09278** - Chevy 2500/3500 2015+
- **MSC09048** – Chevy 1500 2014+





Selling Against The Competition



VS



Selling BOSS Plows Against The Competition

General Features



Designed to look good with today's truck front ends and to flood the plowing area with bright light. SmartLight 2 with it's exclusive HIR (Halogen Infra Red) bulbs, state of the art optics and dual bulb burning capability projects more light wider, farther and more consistently than competitive light packages.



It is also equipped with an advanced vise-like mounting grip so it always stays in alignment. Many competitors use a two-stud system which is more prone to coming out of alignment when hitting objects.



Selling BOSS Plows Against the Competition

General Features



- BOSS owners rave about the Direct-Lift Hydraulic Cylinder system. It looks cleaner on the front of the vehicle, it has fewer moving parts than chain lift systems and also reduces the "bounce" that chained plows can have while encountering bumps in the road. There is also no need to pick up the chain slack when lifting the plow.



Selling BOSS Plows Against the Competition

General Features



BOSS Hydraulics are built for two things, speed and reliability. They are also easy to troubleshoot in the very rare occasion that something goes wrong - with interchangeable parts for convenience. They are also fully-enclosed to keep water, moisture and salt from getting into the hydraulics - for long-term reliability.



Selling BOSS Plows Against the competition

General Features



- All BOSS hydraulic systems consist of two separate components. The hydraulic power unit is self contained and the control valve is a separately, self contained unit. This allows for a less complex system that is more reliable and easier to trouble-shoot and repair. This can save on future maintenance costs.



Selling BOSS Plows Against the Competition

General Features



- All BOSS plows utilize mechanical blade angle stops. This prevents sudden shock loads from impacting the hydraulic rams and anchor pins.
- Some competitors use the hydraulic rams as angling stops. This may result in shock loads directly into the hydraulic rams and the anchor pins. This can bend anchor pins and damage hydraulic rams.



Selling BOSS Plows Against the Competition

General Features



- All BOSS plow controls have an express raise or lower function. By simply hitting the raise button on the control twice in quick succession, the blade will fully raise and the control will then automatically shut off the power unit. By simply hitting the lower button twice in quick succession, the blade will lower fully and go into the float mode automatically. This can save time and/or allow more focus on the job at hand.



Selling BOSS Plows Against the Competition

General Features



- BOSS plows have a 13 pin connector with large diameter pins. This results in about 30% more contact area in the connector for better power transfer.
- Competitive systems use smaller pins with less contact area. The smaller pins may be more susceptible to corrosion and failure.



Selling BOSS Plows Against the Competition

General Features



- BOSS uses the hydraulics and electronics to assist in plow attachment and detachment from plow vehicle.
- Competitive systems have to be manually attached and detached from the plow vehicle.



Selling BOSS Plows Against the Competition

Sport Duty Plows

BOSS Sport Duty series plows come standard with a polyethylene moldboard. This material has a slick surface, keeping snow from sticking to it and increasing plowing efficiency.

Comparable competitive plows come standard with a painted steel moldboard.





Selling BOSS Plows Against the Competition

Sport Duty Plows



BOSS Sport Duty series plows come standard with a built-in, retractable stand to hold the plow when off the vehicle.

Some comparable competitive plows come with temporary stands that have to be removed and stored in the vehicle while the plow is attached.



Selling BOSS Plows Against the Competition

Trip Edge Features



- BOSS plows have a large steel push frame and quadrant bolted to the back of each blade that adds significant structural rigidity to the blade. The a-frame and angle rams are attached to this quadrant which spreads the loads from hard impacts or pushing heavy snow loads, evenly across the back of the blade.
- Some competitor's systems rams and a-frame attach directly to the back of the blade to cross bars added between the blade ribs, putting larger loads onto smaller areas of the blade.



Selling BOSS Plows Against the Competition

Trip Edge Features

- BOSS blades have adjustable trip springs that can be tuned to each individual's desired tripping forces.

- Some competitors use springs that are not adjustable.





Selling BOSS Plows Against the Competition

V-Plow Features



- BOSS V-plows use single acting hydraulic rams to operate the blade in all configurations. This means fewer hydraulic hoses, electronic controls, hydraulic valves and cartridges in the hydraulic system, making for a much less complex hydraulic system - period. By using springs to retract each blade section, there is little to no electrical load drawn from the plow vehicle for this function, resulting in a significantly less overall electrical load on the vehicle during heavy plowing operations.

Competitive Systems use dual acting rams which require a much more complex hydraulic system, twice as many hoses, and also may have a much higher demand on the vehicle electrical system.



Selling BOSS Plows Against the Competition

V-Plow Features



- All BOSS V-Plows blades come standard with Smart-Lock angling rams. This feature locks the blade sections into position and allows the blade to have full back dragging capabilities. This system uses just one hydraulic hose per ram.

Some competitive V plows come standard with dual acting hydraulic rams which locks the blade sections into position for back dragging. This system uses two hydraulic hoses per ram, doubling the chances of a hose failure. Hose failure could render the plow non-functional.



Selling BOSS Plows Against the Competition

V-Plow Features



- All BOSS V-plow controls will automatically change modes internally and allow the plow to operate exactly like a straight blade plow. To operate the plow like a straight blade, simply move your thumb over to the left and push both buttons (very intuitively) and both blade sections will angle to the left just like a straight blade plow and the same for angle right functions. To align the BOSS blade as a straight blade, simply push both right or left buttons on the control until blade is aligned.
- On some competitive V-plow control systems, the buttons are more complex and less intuitive requiring operators to “switch modes” to move the wings in certain formations.



Selling BOSS Plows Against the Competition

V-Plow Features



- All BOSS V-plows have a 1” center hinge pin which spreads the pivot loads through several load bearing hinge lugs from top to bottom. Center hinge bushings have holes for greasing w/a needle grease gun.
- Some competitive V-plow hinges have a tube covering most of, but not touching, the hinge pin . The majority of the plowing loads are centralized only on the top and bottom of the pivot pin and not evenly spread out from the top to the bottom of the pivot pin.



Selling BOSS Plows Against the Competition

V-Plow Features



- All BOSS V-plows come standard with built in curb shoes which are formed into the cutting edges.
- Most competitors sell curb guards as an option that must be purchased separately.



Selling BOSS Plows Against the Competition

V-Plow Features



- BOSS DXT plows offer dual trip protection. If the bottom edges do not trip, the trip blade mechanism adds double protection when hitting unseen obstacles.
- Most competitive V-plows have only trip edge protection. If an obstacle is encountered when plowing straight ahead with both wings all the way retracted, the trip edges will interfere with each other. When this happens, the trip edges cannot trip. This can result in damage.



Selling BOSS Plows Against The Competition

Box Plow Features



All BOSS Box Plows have trip edge protection for machine and operator. They also have a built-in float mechanism for terrain following.

Many competitive box plows have no trip edge. They also mount solidly to the skid steer or bucket and have no terrain following mechanism.



Selling BOSS Plows Against the Competition

Box Plow Features



All BOSS Box Plows have removable side plates which can easily be replaced if damaged. The back hoe and loader box plows include free floating end plates to avoid uneven shoe wear and allow for better rough terrain following.

Most competitive box plows have welded side plates and cannot be easily changed if damaged. The side plates cannot pivot, which can result in much faster shoe wear and lack of ability to follow uneven terrain.



Selling BOSS Plows Against the Competition

Box Plow Features

All BOSS back hoe and loader box plows include full free floating slider bar, bucket mounts to allow full float and articulation for better cleaning and ice scraping.

Many competitive box plows include solid bucket mounts that do not allow float or terrain following.





Selling BOSS Against the Competition

Tailgate Spreaders



The BOSS TGS800 tailgate spreader comes standard with dual, variable speed motors. This allows for excellent control of materials which saves time and money.

Some comparable competitive models come standard with only one variable speed motor which controls both the delivery belt and spinner disk. This does not allow for as much material flow control.



Selling BOSS Against the Competition

Tailgate Spreaders

The BOSS TGS800 tailgate spreader comes standard with a swing away style spinner chute to allow rapid dumping of remaining material.

Some comparable competitive models do not come with this feature and any remaining material must be run through the conveyor and spinner disk to empty unit out.





Selling BOSS Against the Competition

Tailgate Spreaders



The BOSS tailgate spreaders (600,800, 1100) use a standard class 3 or 4 trailer hitch for mounting to the vehicle. The TGS300 uses a Class 2 or higher.

Some competitive models require any existing trailer hitch to be removed and replaced with a special design mount for the unit. This mount protrudes down under the vehicle.



Selling BOSS Against the Competition

Tailgate Spreaders



The BOSS tailgate spreaders have an optional mount that includes a wheel kit allowing one person to safely remove and attachment the spreader to the vehicle. This wheel kit also allows the unit to be easily moved around for storage.

Competitive tailgate spreaders require at least two people to safely mount and remove them from the vehicle.