



SNOWFOE® III

MODEL: MSP

SERIAL #: _____

MANUAL # 85386

INSTRUCTIONS FOR ORDERING PARTS

Order parts from the authorized dealer covering your area.

DEALER: _____

Phone #: _____

ALWAYS GIVE THE MODEL AND SERIAL NUMBER.

To obtain parts promptly, give part name and part number.

Give post office address, town, and state where the parts are to be shipped. UPS (United Parcel Service) and other carriers will not ship to a post office box. You must use a street address. Also be sure to specify whether material is to be shipped by freight, express, parcel post, or UPS. All UPS shipments will be normal surface routing unless specified otherwise.

Confirm all telephone or FAX orders in writing.

Credit for new parts not needed must be obtained from the dealer from whom they were purchased.

Unless claims for shortages or errors are made immediately upon receipt of goods, they will not be considered.

Inspect all goods received immediately upon receipt. When damaged goods are received, insist that a full description of the damage be made by the carrier agent on the freight bill. If this description is insisted upon, full damage can be collected from the transportation company.

No responsibility is assumed for delay or damage to merchandise while in transit. Dealer's responsibility ceases upon delivery of shipment to the transportation company from whom a receipt is received showing that shipment was in good condition when delivered to them; therefore, claims (if any) should be filed with the transportation company and not with the dealer.

SNOWFOE® is a registered trademark of Henderson Manufacturing Inc.



**CUSTOMER SERVICE
and
PARTS DEPARTMENT**

Henderson Manufacturing, Inc.

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PO Box 40
Manchester, IA 52057

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SNOWFOE III ®
MSP Manual #85386
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COMPLETE WARRANTY PROVISIONS

A. PARTS REPLACEMENT AND REPAIR:

Henderson Manufacturing warrants its manufactured products to be free from defects in material or workmanship for a period of one year, after delivery to the original user, or 18 months after factory invoice, whichever occurs first. This warranty of our products under normal use and service is limited to replacement and repair, at the company's factory, of any parts which are returned to the factory freight prepaid, and after our examination were found to be defective.

B. EXCLUSIONS:

1. This warranty is expressly limited to parts replacement and repair, and is not transferable. Any expressed warranty not herein provided, and any remedy for breach of contract is excluded and disclaimed. The implied warranties of merchantability and of fitness for any particular purpose are limited to one year from delivery to the original user, or 18 months from factory invoice, whichever occurs first.
2. Any component or part manufactured by others will carry that manufacturer's warranty, and in no case will Henderson Manufacturing be liable, either expressed or implied, for warranties in excess of those made by the original manufacturer.
3. Under no circumstances will Henderson Manufacturing be liable to the purchaser, or any other person, for any incidental or consequential damages. The user assumes liability for all personal injury or property damage resulting from the handling, possession, or use of the product.
4. Repairs or modifications done by others, or parts from other sources outside the company's factory are not covered by this warranty.
5. No agent, employee, or representative of Henderson Manufacturing has any authority to make any affirmation, representation, or warranty concerning Henderson Manufacturing products, except as specifically stated above.

WARRANTY PROCEDURE

1. Prior authorization by Henderson Manufacturing, must be obtained for all warranty work.
2. Contact our distributor or Henderson Manufacturing giving complete details of your request, the unit involved, including serial number, date purchased, who purchased from, and the nature of or reason for the claim.
3. A Warranty Request Number will be assigned, and is required, whenever any warranty is to be paid either in the form of cash, credit, replacement of parts, or service work.
4. The assignment of a Warranty Request Number does not guarantee warranty will be allowed. The number is to identify the request and part to be returned.
5. When parts are shipped on a Warranty Request, you may be required to return defective part(s) for inspection by Henderson Mfg. or the original manufacturer. In this case, you will be invoiced for shipment of new components until the old unit is returned.

**HENDERSON MFG. INC.
WARRANTY CARD**

Warranty card must be in the files of HENDERSON MANUFACTURING, INC. within 14 days after delivery to the initial user. The Dealer is responsible to see that the card is completed with information required and returned.

HENDERSON MANUFACTURING, INC. will not be obligated to warranty machines unless this registration is on file. For future reference and records, please record the model and serial number of your unit.

MODEL NUMBER _____

SERIAL NUMBER _____

PLEASE PRINT INFORMATION BELOW AND RETURN TO:

Henderson Mfg. Inc.
Attention: Customer Service
P.O. Box 40
Manchester, Iowa 52057

SERIAL NO. _____
MODEL NO. _____

CUSTOMER NAME OR FIRM: _____

CUSTOMER ADDRESS: _____

DATE OF DELIVERY TO CUSTOMER: _____

DEALER: _____

LOCATION: _____

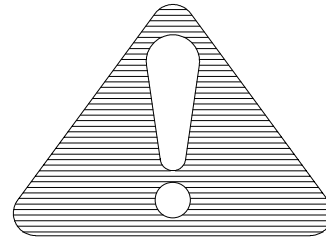
**MAIL WITHIN 14 DAYS AFTER DELIVERY OF UNIT
TO HENDERSON MFG. INC.**

SAFETY

The Safety-Alert Symbol.

This symbol is on safety signs on the equipment and in the manual.

This symbol indicates to you the potential for personal injury and/or property damage.



Hazard Seriousness Levels.

The DANGER signal word indicates - immediate hazards which **WILL** result in severe personal injury or death.





The WARNING signal word indicates - hazards or unsafe practices which **COULD** result in severe personal injury or death.





The CAUTION signal word indicates - hazards or unsafe practices which **COULD** result in minor personal injury or product or property damage.



 Persons who install, mount, operate, or service this equipment must be properly instructed and warned. Do not let anyone operate equipment without instruction.

 Read operator manuals completely before operating equipment. Learn how to operate controls properly.

 Read decal instructions, cautions, and warnings. Read the safety messages in this manual and on safety decals on the snowplow unit. Replace missing or damaged safety decals.

 Unauthorized modifications to the snowplow and related components may impair the function and/or safety.

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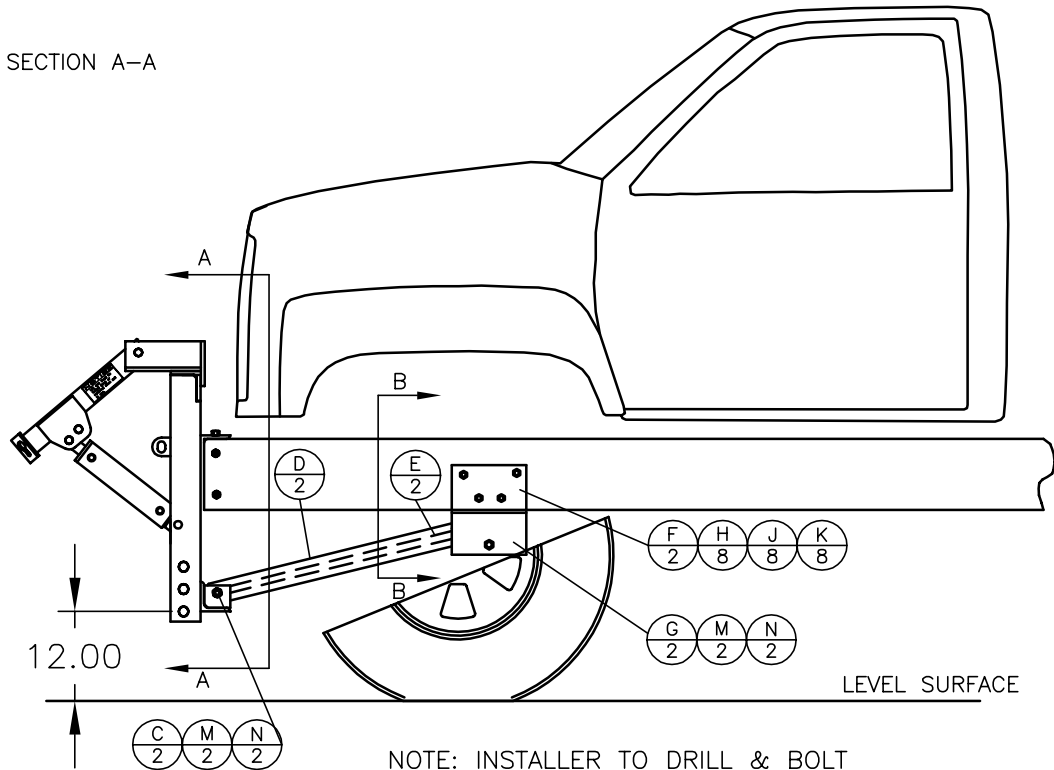
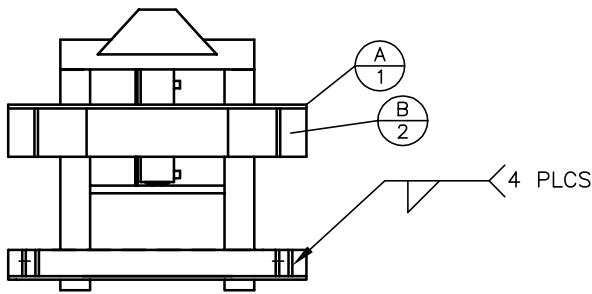
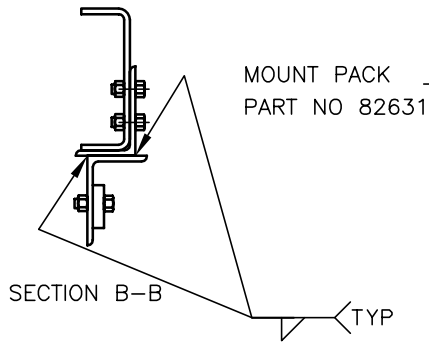
SNOWFOE III[®]

INSTALLATION

PIN HITCH INSTALLATION

BILL OF MATERIALS

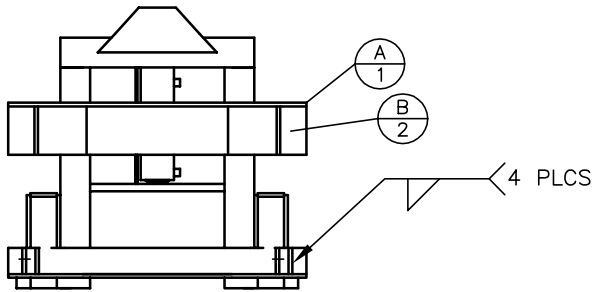
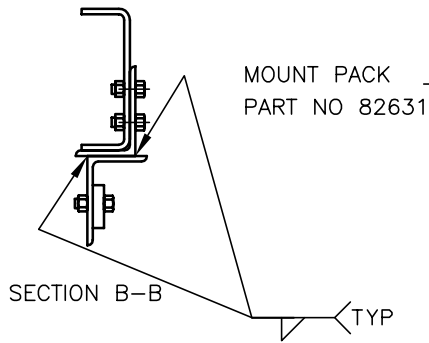
ITEM	QTY.	PART NO.	DESCRIPTION
A	1	82140	ANGLE, MOUNT, HORIZONTAL
B	2	82141	ANGLE, MOUNT, VERTICAL
C	4	82142	PLATE, PIVOT, BRACE
D	2	82143	BAR, BRACE, FRAME
E	2	82144	BAR, STABILIZER, BRACE
F	2	82145	ANGLE, MOUNT, TOP
G	2	82146	ANGLE, MOUNT, BOTTOM
H	8	10549	WASHER, LOCK, 5/8 ID
J	8	81682	NUT, HEX, 5/8-11NC, G8
K	8	82819	SCREW,CP,HX, 5/8NC X 2, G8
L	2	83130	SCREW,CP,HX, 3/4NC X 3 1/4, G8
M	2	83303	SCREW,CP,HX, 3/4NC X 2 1/4, G8
N	4	83304	NUT, LOCK, 3/4-10NC, G8



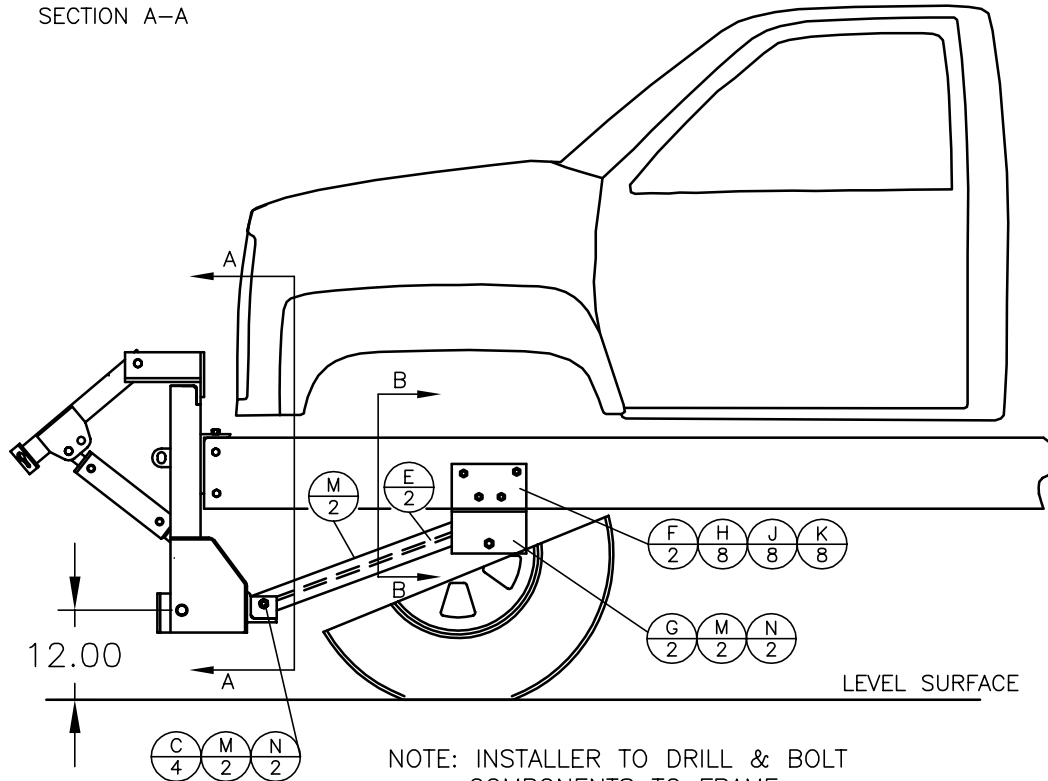
QUICK HITCH INSTALLATION

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	82140	ANGLE, MOUNT, HORIZONTAL
B	2	82141	ANGLE, MOUNT, VERTICAL
C	4	82142	PLATE, PIVOT, BRACE
D	2	82143	BAR, BRACE, FRAME
E	2	82144	BAR, STABILIZER, BRACE
F	2	82145	ANGLE, MOUNT, TOP
G	2	82146	ANGLE, MOUNT, BOTTOM
H	8	10549	WASHER, LOCK, 5/8 ID
J	8	81682	NUT, HEX, 5/8-11NC, G8
K	8	82819	SCREW,CP,HX, 5/8NC X 2, G8
L	2	83130	SCREW,CP,HX, 3/4NC X 3 1/4, G8
M	2	83303	SCREW,CP,HX, 3/4NC X 2 1/4, G8
N	4	83304	NUT, LOCK, 3/4-10NC, G8



SECTION A-A

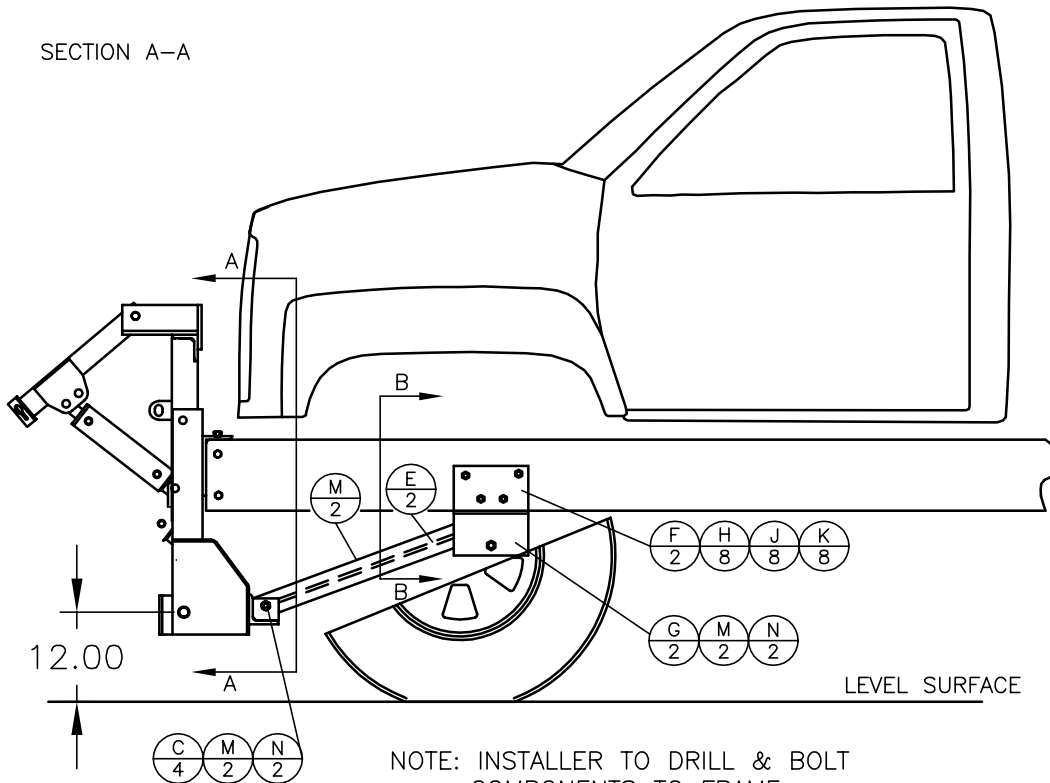
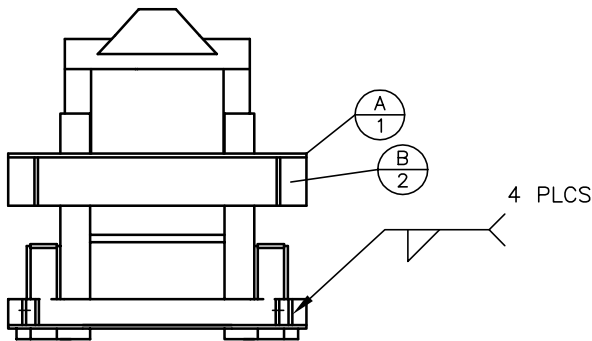
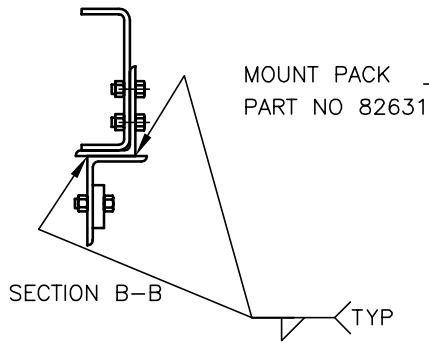


NOTE: INSTALLER TO DRILL & BOLT COMPONENTS TO FRAME.
DO NOT WELD ANY COMPONENTS TO FRAME.

QUICK HITCH, MANUAL TILT, INSTALLATION

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	82140	ANGLE, MOUNT, HORIZONTAL
B	2	82141	ANGLE, MOUNT, VERTICAL
C	4	82142	PLATE, PIVOT, BRACE
D	2	82143	BAR, BRACE, FRAME
E	2	82144	BAR, STABILIZER, BRACE
F	2	82145	ANGLE, MOUNT, TOP
G	2	82146	ANGLE, MOUNT, BOTTOM
H	8	10549	WASHER, LOCK, 5/8 ID
J	8	81682	NUT, HEX, 5/8-11NC, G8
K	8	82819	SCREW,CP,HX, 5/8NC X 2, G8
L	2	83130	SCREW,CP,HX, 3/4NC X 3 1/4, G8
M	2	83303	SCREW,CP,HX, 3/4NC X 2 1/4, G8
N	4	83304	NUT, LOCK, 3/4-10NC, G8



NOTE: INSTALLER TO DRILL & BOLT
COMPONENTS TO FRAME.
DO NOT WELD ANY COMPONENTS
TO FRAME.

REMOVABLE HITCH,FORD,INSTALLATION

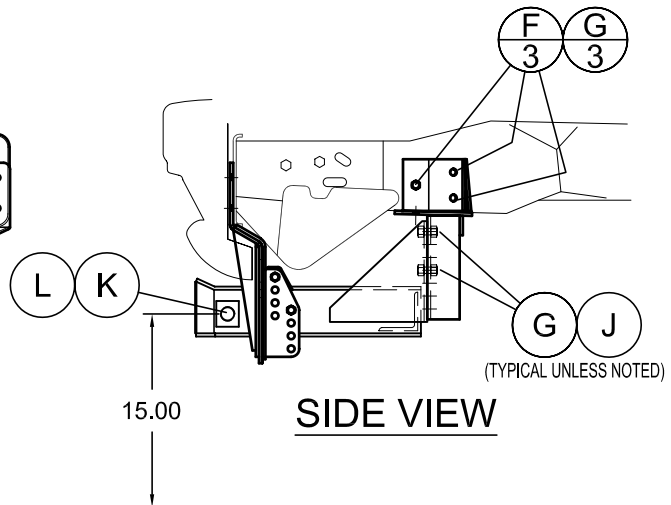
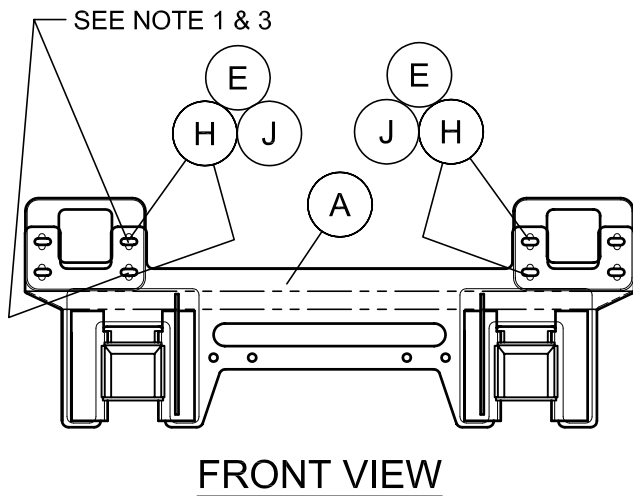
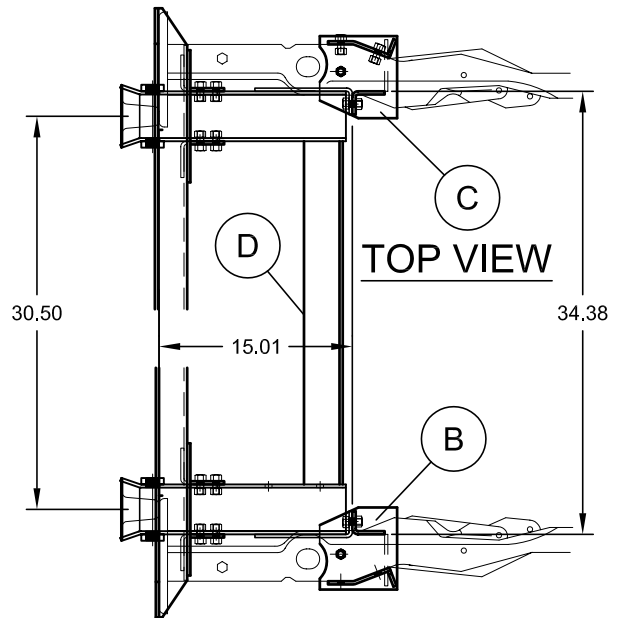
INSTALLATION INSTRUCTIONS:

- 1.) MARK INSIDE HOLE LOCATION ON BUMPER MOUNTING PLATES AS INDICATED.
- 2.) REMOVE (4) BUMPER MOUNTING BOLTS AND REMOVE BUMPER.
- 3.) DRILL (4) 0.531Ø HOLES MARKED ON BUMPER MOUNTING PLATES.
- 4.) RE-INSTALL BUMPER OVER ITEM "A" MOUNTING PLATE UTILIZING (4) BOLTS PREVIOUSLY REMOVED AND ADDITIONAL (4) BOLTS, "G", "J" & "E", FURNISHED.
- 5.) MOUNT RECEIVER WELDMENT "D" TO MOUNTING PLATE "A" AS SHOWN UTILIZING (4) BOLTS "G" & "J" WITH THE CENTER OF HITCH PIN HOLE AT 15 INCHES ABOVE THE GROUND.
- 6.) BOLT FRAME MOUNTS "B" & "C" TO RECEIVER WLDT "D" AND LOCATE (8) .531Ø HOLES TO BE DRILLED IN EACH TRUCK FRAME RAIL.
- 7.) DRILL (8) HOLES IN EACH FRAME AND RE-INSTALL FRAME MOUNTS USING SPANNER NUTS "F" AND BOLTS "G" & "H" AS SHOWN.
- 8.) CHECK THAT RECEIVER TUBES ARE PARALLEL AND LEVEL, TORQUE ALL BOLTS TO 45 IN LBS.

PARTS LIST

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	86099	MOUNT PLATE,WLDT,TRUCK,
B	1	86100	FRAME MOUNT,WLDT,TRUCK,LH
C	1	86101	FRAME MOUNT,WLDT,TRUCK,RH
D	1	86764	RECEIVER WELDMENT
E	8	10558	WASHER, FLAT, STD, 1/2
F	8	86116	NUT,SPANNER,WELDMENT
G	18	50340	SCREW,CP,HX,1/2NC x 1 G5
H	6	50341	SCREW,CP,HX,1/2NC x 1 1/4 G5
J	16	74335	NUT,WHIZLOCK,FLG,1/2-13NC
K	2	105517	PIN, 1.00 X 6325
L	2	80643	PIN,LYNCH,3/16 x 1 9/16

COMPLETE HITCH ASSEMBLY - P/N 86115

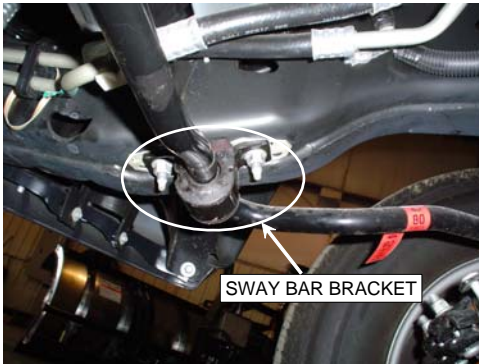


FORD 2008+ F SERIES PLOW HITCH INSTRUCTIONS

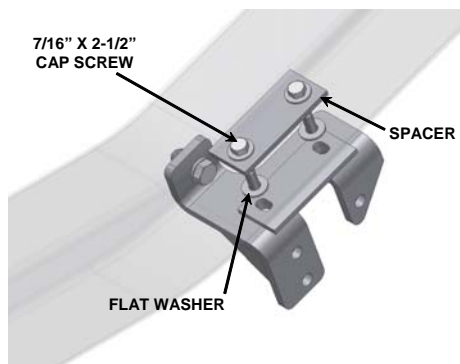
INSTALLATION INSTRUCTIONS

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

1. Remove the air dam and bumper. Retain fasteners for later installation.
2. Remove the metal sway bar brackets and retain for reinstallation later in this procedure.

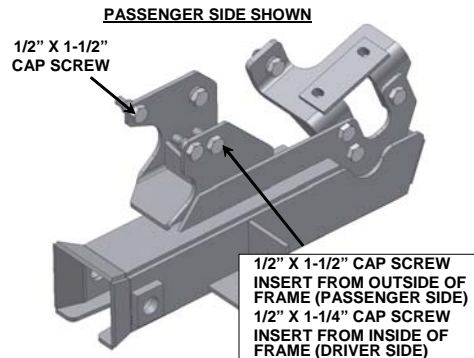


3. Completely remove the sway bar fasteners and bolt clips from the keyholes in the truck frame. Retain the fasteners and clips for future reinstallation if the plow mounting kit is removed from the vehicle.
4. Place a spacer inside the passenger side of the truck frame with the slots closest to the center of the vehicle. Insert a 7/16" x 2-1/2" cap screw down through a 7/16" flat washer, the spacer, the truck frame and a flat washer.



5. Position the passenger-side rear mount so the cap screw goes through the appropriate hole. Place the sway bar in position and align the sway bar bracket with the fastener. Attach a 7/16" locknut and hand-tighten.

6. Insert a second 7/16" x 2-1/2" cap screw through a washer, the spacer, truck frame, a flat washer, rear mount and sway bar bracket. Attach a 7/16" locknut and hand-tighten.
7. Insert a 1/2" x 1-1/2" cap screw and 1/2" washer into the truck frame and out through the front hole in the rear mount. Attach a 1/2" locknut and hand-tighten.
8. Position the passenger side front mount so the rear hole is aligned with the rear hole in the rear mount. Insert a 1/2" x 1-1/2" cap screw through the hole in the front mount and rear mount, attach a 1/2" locknut and hand-tighten.
9. Rotate the mount up against the truck frame. Insert a 1/2" x 1-1/2" cap screw into the inner rear hole at the front of the mount and through the truck frame. Attach a 1/2" washer and locknut on the inside of the truck frame and hand-tighten.



10. Insert a 1/2" x 1-1/2" cap screw into the inner front hole in the passenger-side mount. Attach a 1/2" locknut on the inside of the truck frame and hand-tighten.
11. Insert a 1/2" x 1-1/2" cap screw and 1/2" washer into the truck frame and out through the outer rear hole in the mount. Attach a 1/2" washer and locknut and hand-tighten.
12. Insert a 1/2" x 1-1/2" cap screw into the truck frame and out through the outer front hole in the mount. Attach a 1/2" locknut and hand-tighten.
13. Install two more 1/2" x 1-1/2" cap screws through the holes in the front mount and rear mount. Attach locknuts to fully secure the

rear mount to the front mount. Hand-tighten the fasteners.

14. Repeat steps 4–8 on the driver side.



15. Rotate the mount up against the truck frame. Insert a 1/2" x 1-1/4" cap screw and 1/2" washer into the truck frame and out through the inner rear hole at the front of the mount. Attach a 1/2" locknut and hand-tighten.

16. Insert a 1/2" x 1-1/4" cap screw into the truck frame and out through the inner front hole in the driver-side mount. Attach a 1/2" locknut and hand-tighten.

17. Insert a 1/2" x 1-1/2" cap screw and 1/2" washer into the truck frame and out through the outer rear hole in the mount. Attach a 1/2" washer and locknut and hand-tighten.

18. Insert a 1/2" x 1-1/2" cap screw into the truck frame and out through the outer front hole in the mount. Attach a 1/2" locknut and hand-tighten.

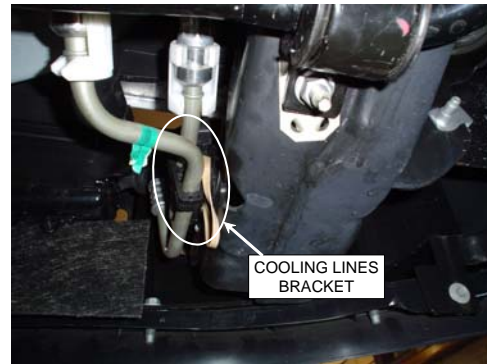
19. Install two more 1/2" x 1-1/2" cap screws through the holes in the mount and rear mount. Attach locknuts to fully secure the rear mount to the front mount. Hand-tighten the fasteners.

20. Install the cross bar using four 1/2" x 1-1/2" cap screws and 1/2" locknuts. Hand-tighten the fasteners.

21. Make sure both of the front and rear mounts are tight against the truck frame. Fully tighten the fasteners securing the mounts to the truck frame according to the torque chart.

22. Remove the plastic bracket holding the metallic cooling lines from the passenger

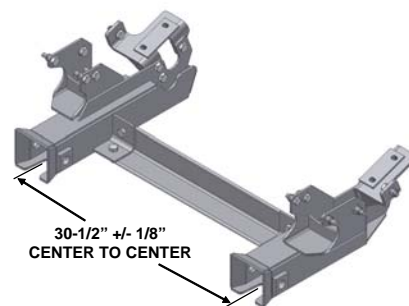
side of the truck frame. Stack three 1/2" washers over the bracket fastener.



23. Reinsert the fastener into the original hole to hold its position. Wrap a cable tie around the entire frame and tubing behind the bracket. Do not wrap the cable tie over any other wires or tubes, or go inside the truck frame.

24. Tighten cable tie until it is snug, taking care not to crimp tubing. Trim excess length.

25. Check for a receiver bracket center line to center line distance of 30-1/2" ± 1/8". Take a second measurement farther back on the mounts to ensure that they are parallel. If the U-bracket distance is not within 30-1/2" ± 1/8", then 1/2" flat washers may be used to shim one or both mounts in the appropriate direction to obtain the desired dimension. Tighten all fasteners according to the torque chart after achieving the appropriate dimensions.

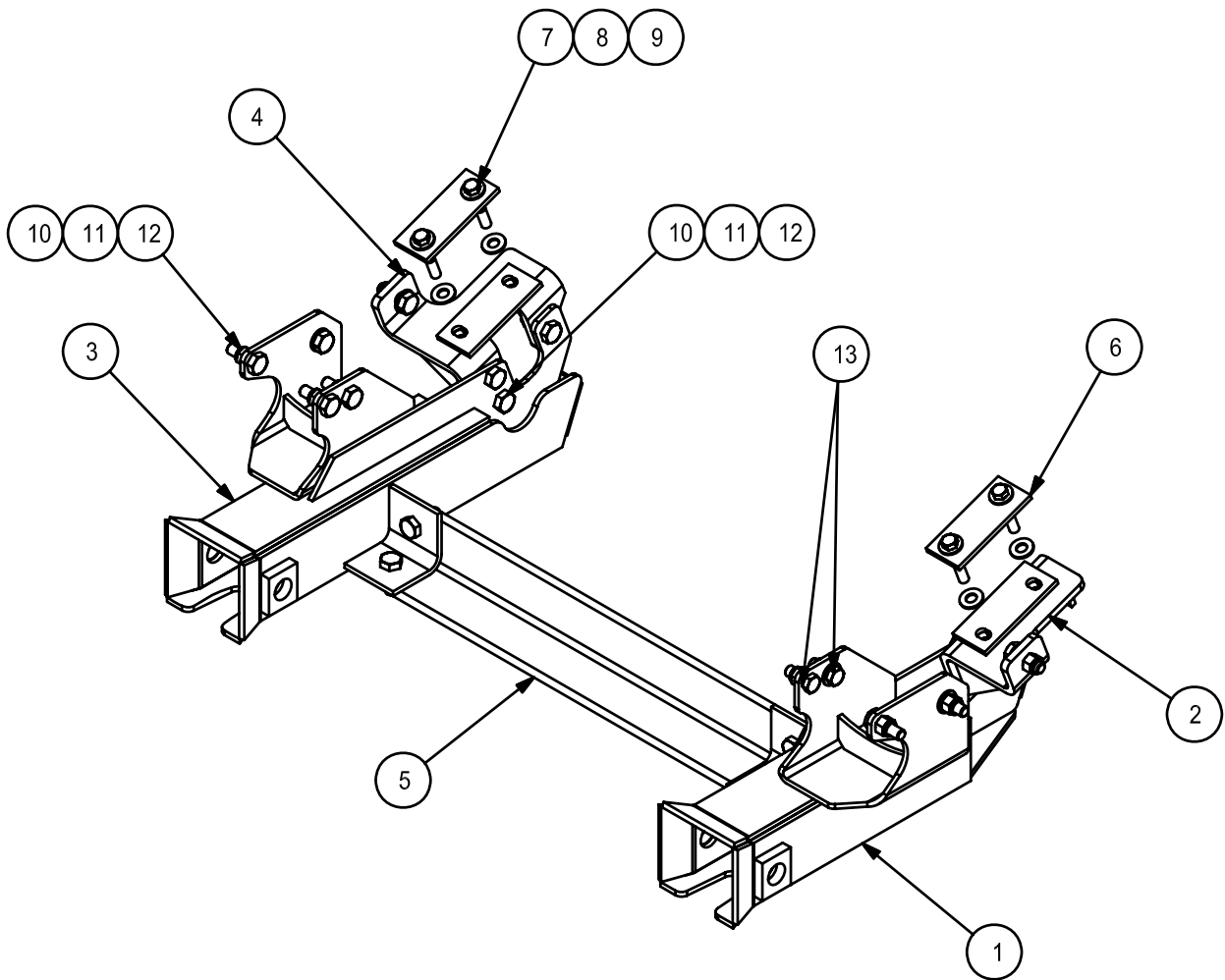


26. Reattach the bumper with original fasteners.

27. If the air dam does not clear the receiver brackets, notch as needed.

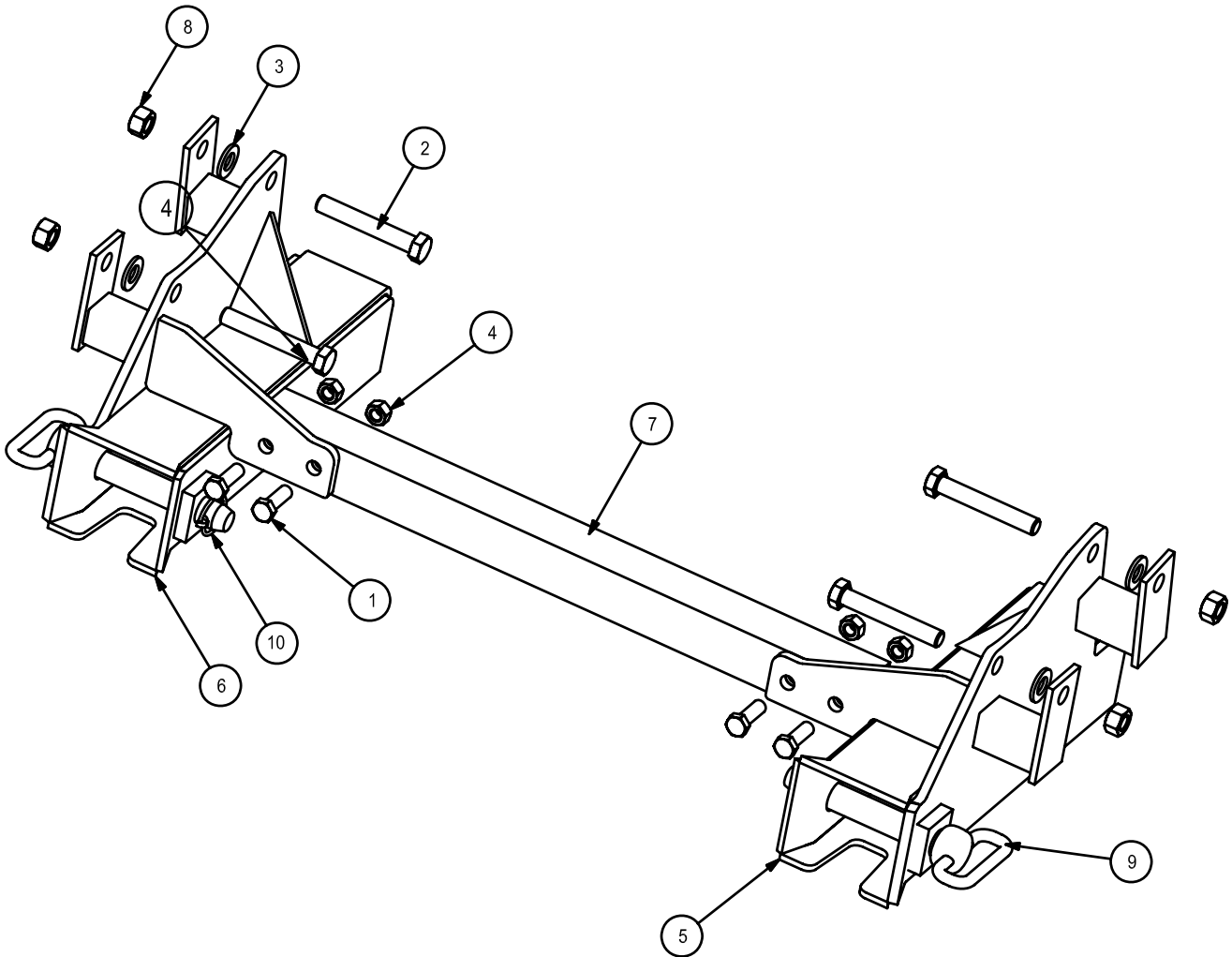
FORD 2008+ F SERIES PLOW HITCH PARTS LIST

BILL OF MATERIALS			
ITEM	PART NO	QTY	DESCRIPTION
1	114963	1	MOUNT,WLDT,FRONT,DS
2	114977	1	MOUNT,WLDT,REAR,DS
3	114972	1	MOUNT,WLDT,FRONT,PS
4	114982	1	MOUNT,WLDT,REAR,PS
5	108219	1	ANGLE, CROSS SUPPORT
6	114979	2	PLATE,SPACER,SWAYBAR
7	114985	4	SCREW, CP, HX, 7/16NC X 2 1/2,G8
8	88244	8	WASHER,FLAT, 7/16", SS
9	114986	4	NUT,HEX,7/16-14NC,SLFLKG,NYLON,G8
10	50342	18	SCREW,CP,HX,1/2NC X 1 1/2 G5
11	50793	8	WASHER,FLAT, 1/2", SS
12	11021	20	NUT NYLOCK 1/2-13NC
13	50341	2	SCREW,CP,HX,1/2NC X 1 1/4
14	105517	2	PIN,1.00 X 6.25
15	80643	2	PIN,LYNCH,3/16 X 1 9/16



BILL OF MATERIALS			
ITEM	PART NO	QTY	DESCRIPTION
1	103658	4	SCREW, CP, HX, 1/2 X 1 1/2, G8
2	105340	4	SCREW, CP, HX, 5/8NC X 4, G8
3	105343	4	WASHER, FLAT, .69 ID HARDENED
4	108665	4	NUT, TOPLOCK, 1/2-13NC
5	118106	1	MOUNT, WLDT, FRONT, LH, DODGE
6	118107	1	MOUNT, WLDT, FRONT, RH, DODGE
7	118118	1	ANGLE, CROSS, DODGE
8	81861	4	NUT, TOPLOCK, 5/8-11NC, G8
9	105517	4	PIN, 1.00 X 6.25
10	80643	4	PIN, LYNCH, 3/16 X 1 9/16

COMPLETE KIT = P/N 118108

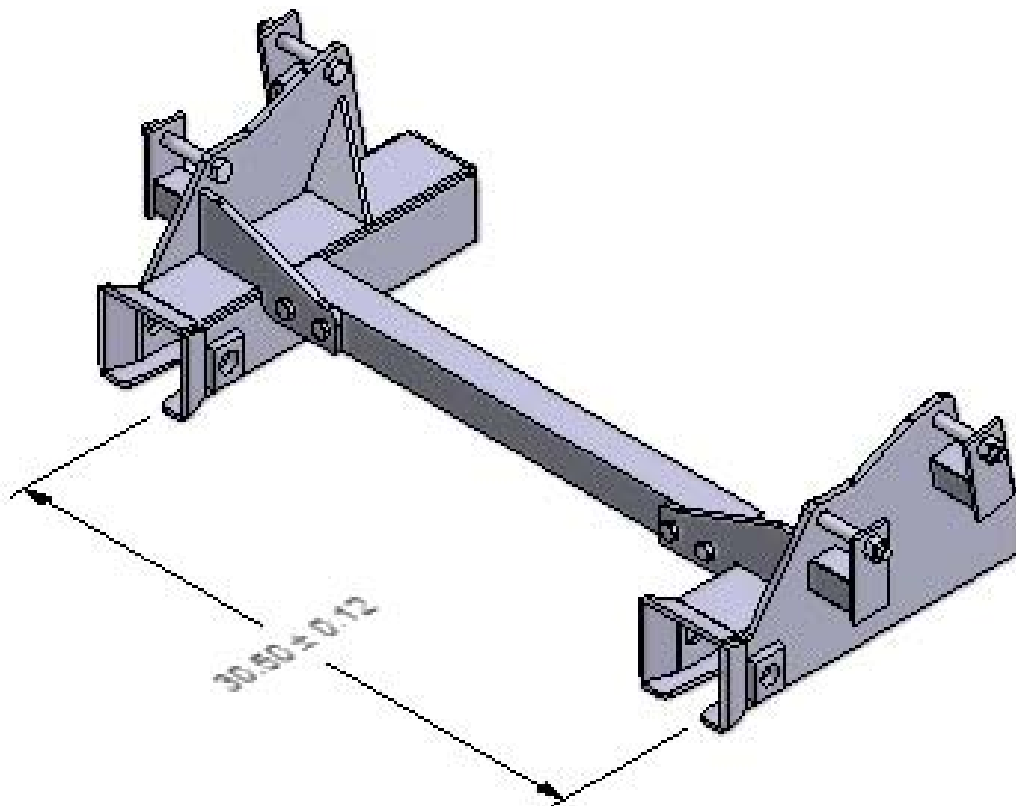


DODGE RAM / STERLING BULLET PLOW HITCH INSTRUCTIONS

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. Remove the lower plastic portion of the bumper. Remove the tow hooks and store the tow hooks and the original fasteners for future re-use if the plow hitch parts are removed from the vehicle.
2. Attach the main receiver brackets to each side of the truck frame using the mounting holes from the tow hooks. Hand tighten the 5/8" x 4" hex head capscrews provided through the mount and the truck frame.
3. Position the cross angle between the two mounts. Hand tighten the 1/2" x 1 1/2" capscrews and lock nuts.
4. Check for a receiver bracket center line to center line distance of 30-1/2" \pm 1/8". Take a second measurement farther back on the mounts to ensure that they are parallel. If the receiver center line distance is not within 30-1/2" \pm 1/8", use hardened 5/8" flat washers provided to shim receiver brackets to proper dimension.



5. Tighten all fasteners according to the torque chart after achieving the appropriate dimensions.
6. Re-attach the lower plastic portion of the bumper. Notch the openings in the plastic portion to fit around the receiver brackets.

OPERATING INSTRUCTIONS

- Inspect all fasteners prior to use. Replace broken or worn parts immediately. Re-torque loose fittings to SAE standards (see chart in back of manual).
- Do not attempt to plow snow with the plow suspended off the ground. Serious damage to the snow plow may result as well as subjecting the front axle assembly to possible overload.
- If the snow plow is equipped with quick hitch mechanism, inspect all attaching parts, springs, and latches prior to use.
- Inspect the cutting edge prior to each use and at various intervals during the period of use to inspect for wear, loose or missing fasteners, and breakage. Repair or replace as needed. Do not attempt to wear cutting edge beyond useable life to avoid damage to bottom moldboard support structure (frog).

In order to preserve the chrome plated shafts on hydraulic cylinders, the hydraulic cylinder should be operated at least once each day. This is particularly important for those cylinders that operate in a normally extended position. This operation allows oil to penetrate the “pores” of the chrome to prevent rusting. When storing units for the off season, insure that hydraulic cylinders are stored in the fully collapsed position if possible, and that all ports, hoses, etc., have been capped or plugged to prevent the introduction of moisture and contaminants.

IN SEASON MAINTENANCE

- Snow removal equipment must be cared for and maintained regularly. Daily or pre-route inspection and maintenance are necessary. Failure to do so may affect efficiency, wear like or safety.
- A visual inspection must be carried out after every eight hours of operation. Look for damaged components, bends, cracked welds or hydraulic leaks. Repair immediately. It is recommended to re-torque all bolts after the first eight hours of use and to regularly check for loosened or missing fasteners. Replace any damaged fasteners immediately.
- Because of the environment in which snow equipment is expected to operate, hydraulic lines, fasteners, wearable or replaceable items and warning decals may become damaged by snow, ice and road debris. These items must be inspected daily and replaced if necessary to avoid equipment damage or personal injury.
- Lubrication of moving parts is of utmost importance. Exposure to snow, ice, salt and road debris will wash away lubrication quickly and it may be necessary to inspect and reapply lubrication more than once a day.

OFF SEASON MAINTENANCE

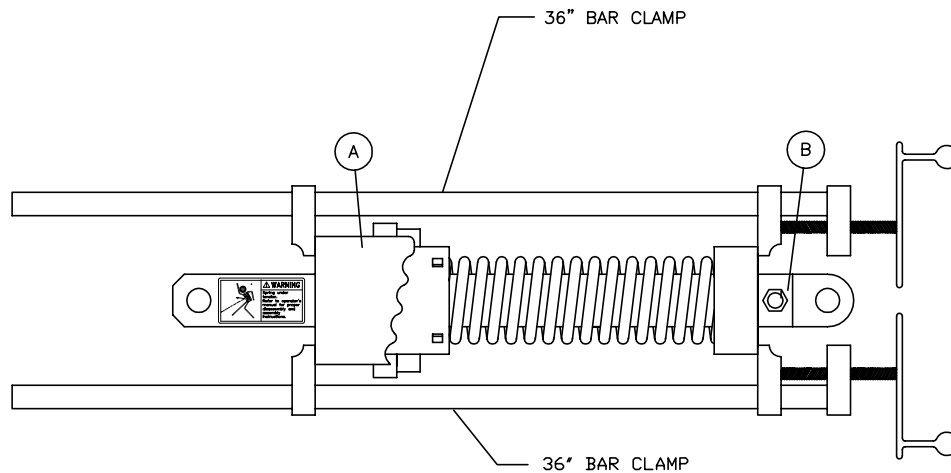
- Mounting bolts are Grade 8 cap screws with hardened flat washers. Care should be taken not to mix or misplace them when the snow plow is removed during the off-season. Be sure to replace any fasteners with damaged threads.
- All hydraulic cylinders should be fully retracted when stored, if possible, during the off-season to prevent damage, corrosion, or contamination. Remaining exposed shaft surface is to be coated with a moisture displacement, such as a thick grease, which should be removed before returning to regular service.
- When disconnecting hydraulic lines, valves, and so forth insure that dirt and other forms of contamination do not enter the system. Use caps for covering hydraulic hose fittings and install plugs in hydraulic ports.

COMPRESSION SPRING DISSASSEMBLY



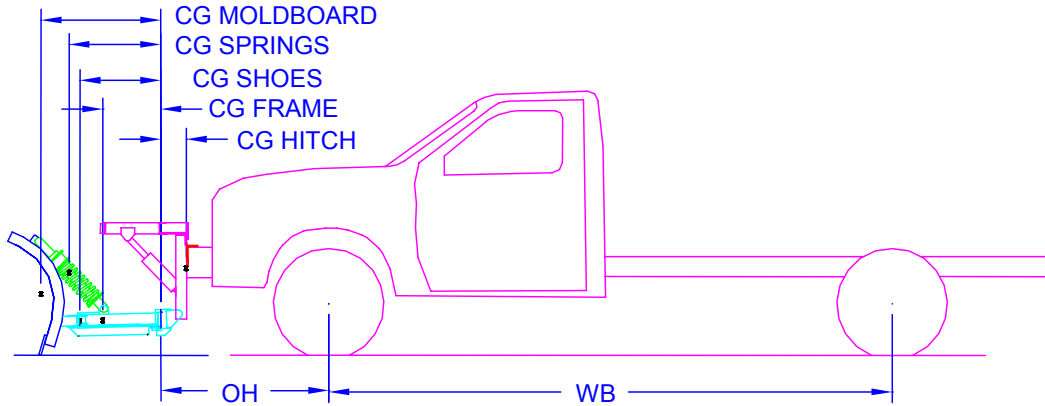
WARNING!

**SPRING ASSEMBLY IS UNDER
COMPRESSION. FOLLOW DISSASSEMBLY
INSTRUCTIONS TO AVOID POSSIBLE
INJURY OR DEATH !**



1. FOR DISSASSEMBLY OF THE COMPRESSION SPRING ASSEMBLY, FIRST SET THE TUBE CAM WELDMENT (ITEM A) TO ITS LOWEST SETTING AS SHOWN.
2. USING TWO (2) 36 INCH BAR CLAMPS POSITIONED AS SHOWN. ALTERNATE TIGHTENING CLAMPS UNTIL SPRING IS COMPRESSED ENOUGH TO ALLOW SAFE REMOVAL OF THE HEX HEAD CAP SCREW (ITEM B).
3. ALTERNATE LOOSENING CLAMPS UNTIL SPRING TENSION IS GONE, REMOVE CLAMPS, AND CONTINUE DISSASSEMBLY.
4. RE-ASSEMBLE IN REVERSE ORDER

FRONT AXLE REACTIONS



WB - Wheel Base – Distance between Front and Rear Axle or Front Axle and center of Rear Tandem
 OH – Overhang – Distance between Front Axle and back of A-Frame
 CG – Location of the Center of Gravity of each component from the back of the A-Frame
 FAR – Front Axle Reaction Force

Procedure to Determine Front Axle Loading

1. Determine components on MSP Plow
2. Find WB Enter in Column WB for each component
3. Find OH Enter in Column OH for each component
4. Add Columns WB, OH, and CG for each component that is on the MSP and enter number into Column L
5. Multiply Column L and WT for each component and enter into column M
6. Divide column M by WB and enter number into column FAR_{COMPONENT}
7. Add all components in Column FAR_{COMPONENT} to find the Total FAR

Table 1. Determining the Total FAR							
Components	WB	OH	CG	L	WT	M	FAR _{COMPONENT}
				WB+OH+CG	lb.	L x WT	M / WB
	in.	in.	in.	in.	lb.	in.	lb.
Circle Frame with A Frame			17.0		335		
Trip Spring, Adjustable (2)			26.9		104		
Trip Spring, Non-Adjustable (2)			26.0		80		
Pin Hitch Assy ¹			-3.1		310		
Quick Hitch Assy ¹			-2.2		455		
Ford Hitch Assy ¹			-4.7		325		
Mushroom Shoe with spacers (2)			23.7		40		
9' x 34" x poly w/ cutting edge			35.1		456		
10' x 34" x poly w/ cutting edge			35.1		488		
11' x 34" x poly w/ cutting edge			35.1		520		
12' x 34" x poly w/ cutting edge			35.1		574		
9' x 34" poly Int. Shield w/ cutting edge			37.7		549		
10' x 34" poly Int. Shield w/ cutting edge			37.7		585		
11' x 34" poly Int. Shield w/ cutting edge			37.7		621		
12' x 34" poly Int. Shield w/ cutting edge			37.7		688		
9' x 34" x 10ga w/ cutting edge			35.1		505		
10' x 34" x 10ga w/ cutting edge			35.1		547		
11' x 34" x 10ga w/ cutting edge			35.1		589		
12' x 34" x 10ga w/ cutting edge			35.1		631		
9' x 34" 10ga Int. Shield w/ cutting edge			37.7		574		
10' x 34" 10ga Int. Shield w/ cutting edge			37.7		615		
11' x 34" 10ga Int. Shield w/ cutting edge			37.7		656		
12' x 34" 10ga Int. Shield w/ cutting edge			37.7		697		
9' x 34" x 7ga w/ cutting edge			35.1		555		
10' x 34" x 7ga w/ cutting edge			35.1		602		
11' x 34" x 7ga w/ cutting edge			35.1		650		
12' x 34" x 7ga w/ cutting edge			35.1		697		

1. Hitch Assy includes both the truck and plow portion

Total FAR = lbs.



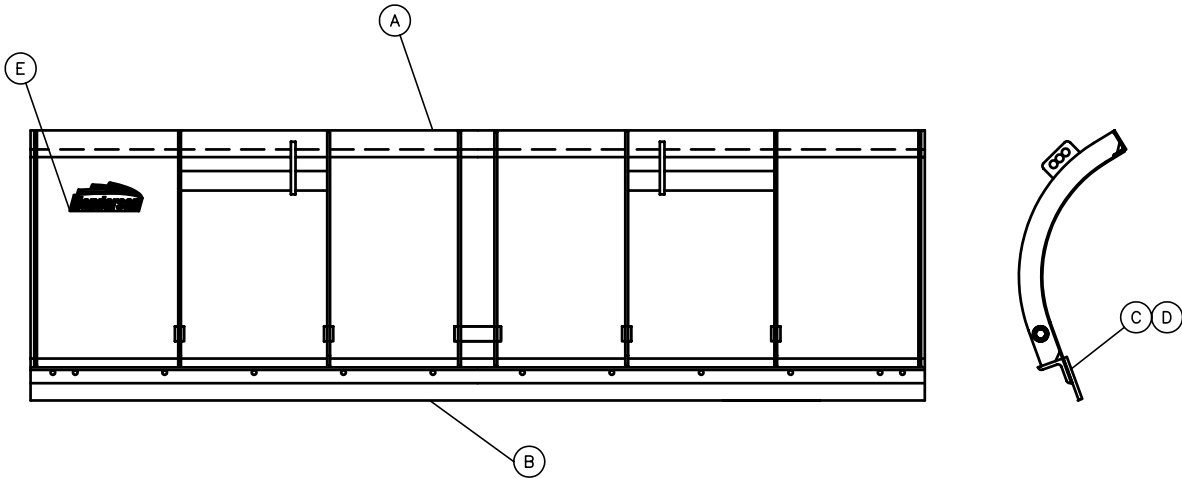
SNOWFOE III[®]

PARTS

MOLDBOARD ASSEMBLY – STEEL

BILL OF MATERIALS

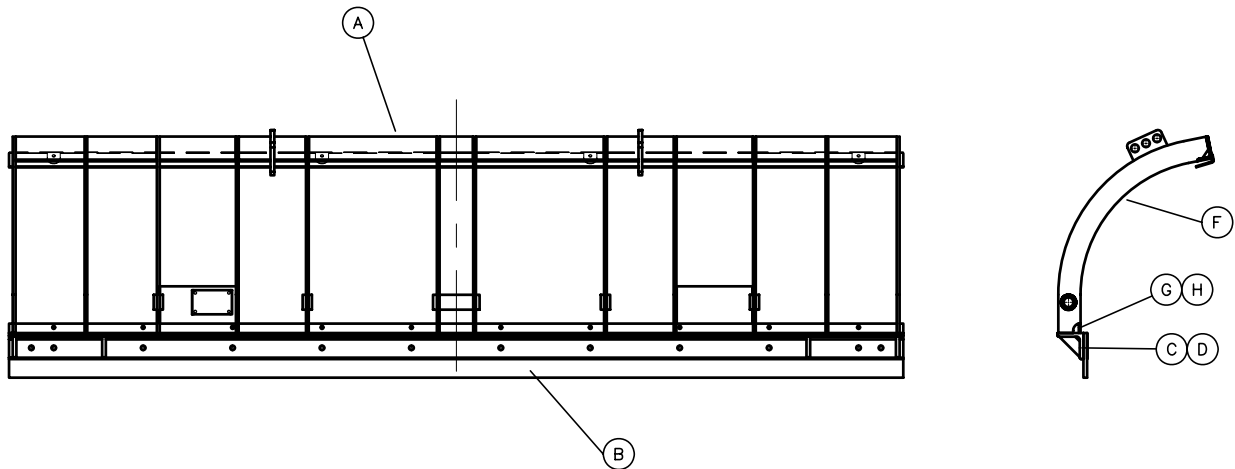
ITEM	9'	10'	11'	12'	PART NO.	DESCRIPTION
A	1	–	–	–	85226	MOLDBOARD, WLDT, 34" X 9' X 10GA
A	–	1	–	–	85058	MOLDBOARD, WLDT, 34" X 10' X 10GA
A	–	–	1	–	85215	MOLDBOARD, WLDT, 34" X 11' X 10GA
A	–	–	–	1	85216	MOLDBOARD, WLDT, 34" X 12' X 10GA
A	1	–	–	–	85453	MOLDBOARD, WLDT, 34" X 9' X 7GA
A	–	1	–	–	85454	MOLDBOARD, WLDT, 34" X 10' X 7GA
A	–	–	1	–	85455	MOLDBOARD, WLDT, 34" X 11' X 7GA
A	–	–	–	1	85456	MOLDBOARD, WLDT, 34" X 12' X 7GA
B	1	–	–	–	81940	CUTTING EDGE, 9', STEEL
B	–	1	–	–	81941	CUTTING EDGE, 10', STEEL
B	–	–	1	–	81942	CUTTING EDGE, 11', STEEL
B	–	–	–	1	83666	CUTTING EDGE, 12', STEEL
C	11	12	13	14	81751	BOLT, PLOW, 5/8–11NC X 2 1/2
D	11	12	13	14	81861	NUT, CENTERLOCK, 5/8–11NC, G8
E	1	1	1	1	81227	DECAL, LOGO, 4.4 X 13.2



MOLDBOARD ASSEMBLY – POLY

BILL OF MATERIALS

ITEM	9'	10'	11'	12'	PART NO.	DESCRIPTION
A	1	–	–	–	85420	MOLDBOARD, WLDT, 34" X 9' X POLY
A	–	1	–	–	85421	MOLDBOARD, WLDT, 34" X 10' X POLY
A	–	–	1	–	85422	MOLDBOARD, WLDT, 34" X 11' X POLY
A	–	–	–	1	85423	MOLDBOARD, WLDT, 34" X 12' X POLY
B	1	–	–	–	81940	CUTTING EDGE, 9', STEEL
B	–	1	–	–	81941	CUTTING EDGE, 10', STEEL
B	–	–	1	–	81942	CUTTING EDGE, 11', STEEL
B	–	–	–	1	83666	CUTTING EDGE, 12', STEEL
C	11	12	13	14	81751	BOLT, PLOW, 5/8–11NC X 2 1/2
D	11	12	13	14	81861	NUT, CENTERLOCK, 5/8–11NC, G8
E	1	1	1	1	81227	DECAL, LOGO, 4.4 X 13.2
F	1	–	–	–	85589	SHEET, MOLDBOARD, POLY, 3/8" X 9'
F	–	1	–	–	85590	SHEET, MOLDBOARD, POLY, 3/8" X 10'
F	–	–	1	–	85591	SHEET, MOLDBOARD, POLY, 3/8" X 11'
F	–	–	–	1	85592	SHEET, MOLDBOARD, POLY, 3/8" X 12'
G	11	12	13	14	83312	BOLT, ELEVATOR, 3/8 X 1
H	11	12	13	14	50416	NUT, TOPLOCK, FLG, 3/8 NC

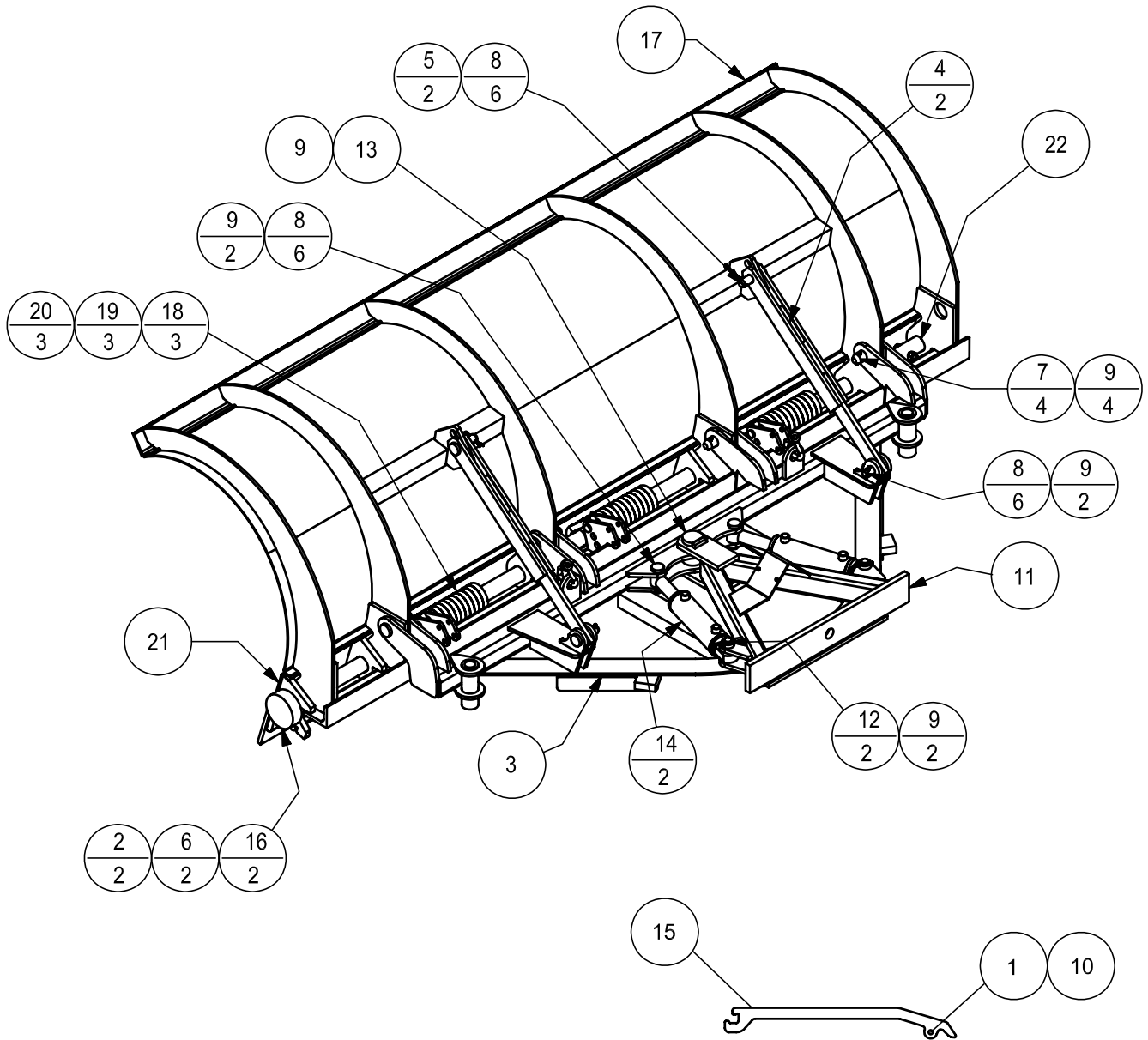


RSPMD08

MSP TRIP EDGE

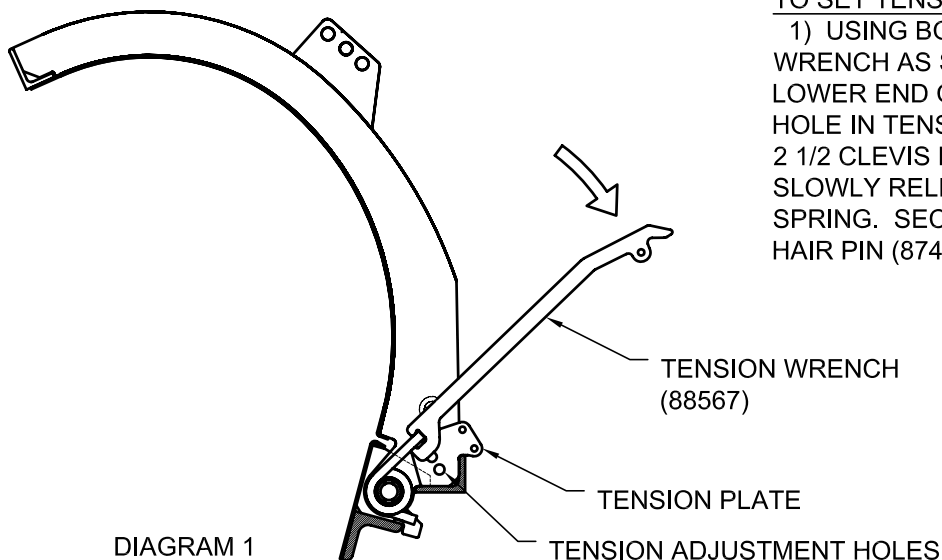
PARTS LIST			
ITEM	PART NO	QTY	DESCRIPTION
1	10560	1	NUT, HEX, 1/2-16NC
2	11484	2	NUT, HEX, 5/8NC, SLFLKG, NYLON
3	115762	1	SEMI CIRCLE, WLDT, MSP, TE
4	115765	2	STABILIZER, WLDT, TE
5	50601	2	PIN, COTTER, 1/4 X 2 1/4
6	76487	2	SCREW, CP, HX, 5/8NC X 3, G8
7	81874	4	PIN, 1.25 X 4.00
8	81875	6	PIN, 1.00 X 3.25
9	82150	11	PIN,EXPNSN,1/4 X 2
10	82464	1	SCERW, CP, HX, 1/2NC X 2 3/4
11	85151	1	A-FRAME, WLDT, MSP
12	85249	2	PIN, 1.00 X 3.38
13	85509	1	PIN, 1.75 X 5.75
14	85510	2	CYLINDER
15	88567	1	WRENCH, TE
16	95001	2	SHOE, CURB, RND, WELD
17	MWMD	1	MLDBRD, WLDT, MSP, 9'-12', TE
18	95297	3	SPRING, TORSION
19	88571	3	PIN, CLEVIS
20	10824	3	PIN, HAIR, 1/8 X 2 11/16
21	115760	1	TRIP EDGE, WLDT, MSP, 9'
	115976	1	TRIP EDGE, WLDT, MSP, 10'
	115977	1	TRIP EDGE, WLDT, MSP, 11'
	115978	1	TRIP EDGE, WLDT, MSP, 12'
22	88809	1	TUBE, TRIP EDGE, 9'
	95595	1	TUBE, TRIP EDGE, 10'
	95596	1	TUBE, TRIP EDGE, 11'
	95597	1	TUBE, TRIP EDGE, 12'

MESP TRIP EDGE

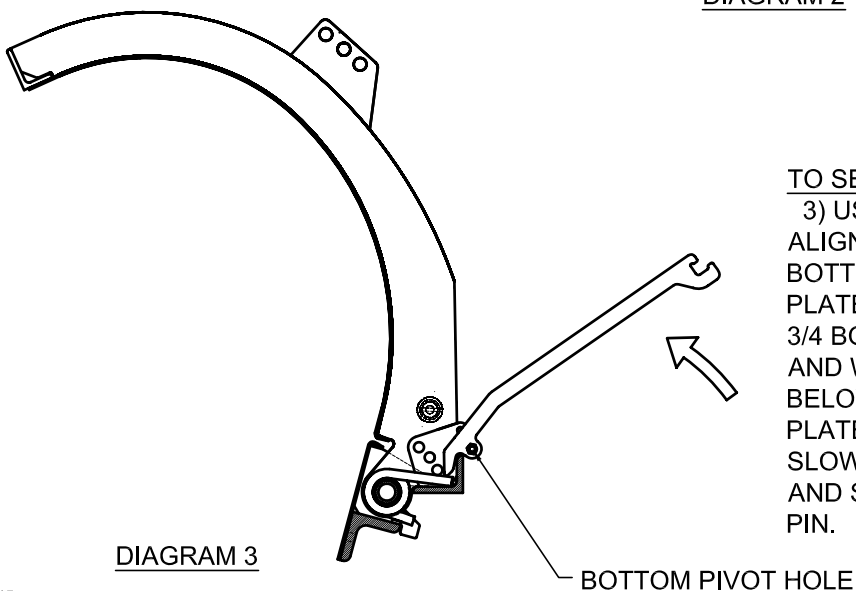
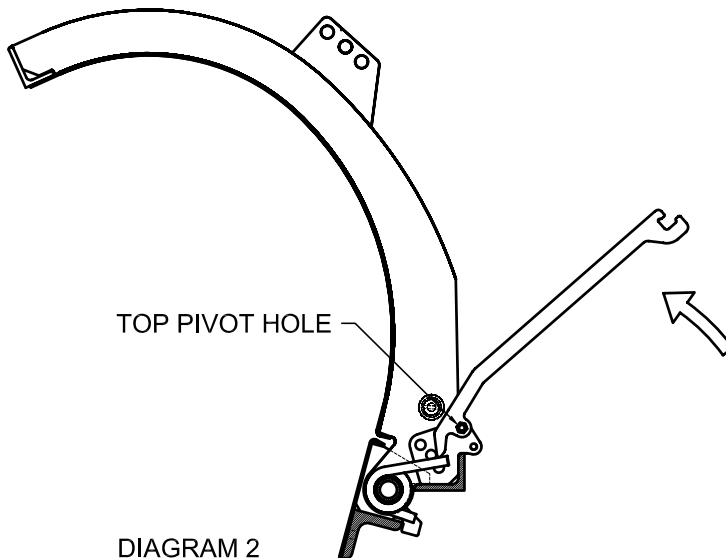


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ADJUSTABLE TRIP EDGE



TO SET TENSION IN MIDDLE SETTING:
2) USING OPPOSITE END AS IN STEP 1, ALIGN HOLE IN TENSION WRENCH WITH TOP PIVOT HOLE IN TENSION PLATE (SEE DIAGRAM 2). INSERT 1/2 X 2 3/4 BOLT THROUGH TENSION PLATES AND WRENCH. LOWER END OF SPRING BELOW MIDDLE HOLE IN TENSION PLATE AND INSERT CLEVIS PIN. SLOWLY RELEASE SPRING TENSION AND SECURE CLEVIS PIN WITH HAIR PIN.

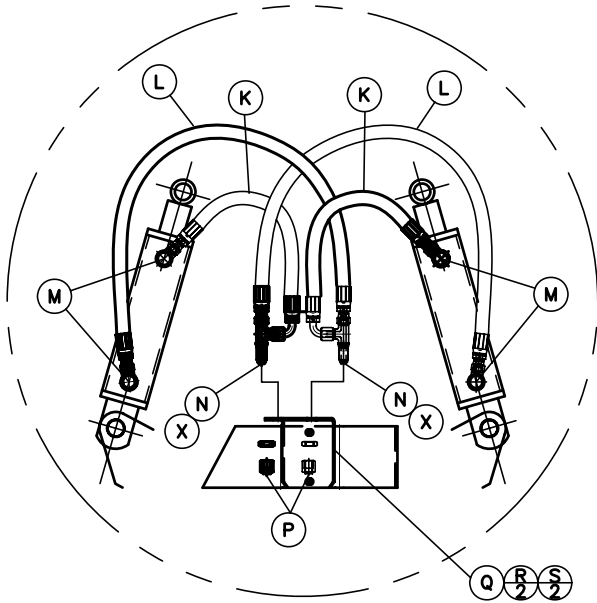


TO SET TENSION IN HIGHEST SETTING:
3) USING SAME END AS IN STEP 2, ALIGN HOLE IN TENSION WRENCH WITH BOTTOM PIVOT HOLE IN TENSION PLATE (SEE DIAGRAM 3). INSERT 1/2 X 2 3/4 BOLT THROUGH TENSION PLATES AND WRENCH. LOWER END OF SPRING BELOW BOTTOM HOLE IN TENSION PLATE AND INSERT CLEVIS PIN. SLOWLY RELEASE SPRING TENSION AND SECURE CLEVIS PIN WITH HAIR PIN.

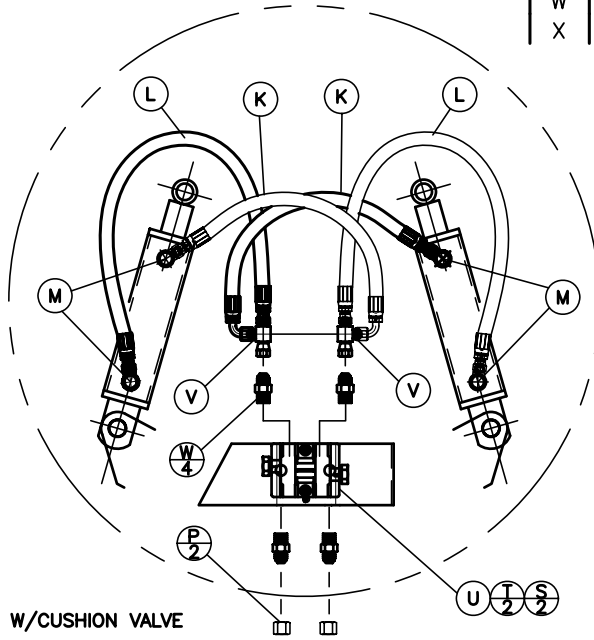
PUSH FRAME ASSEMBLY

PARTS LIST

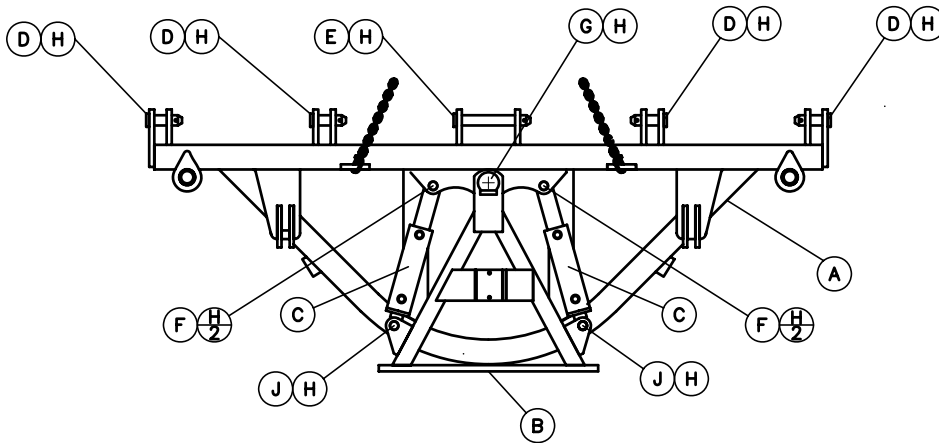
ITEM	QTY.	PART NO.	DESCRIPTION
A	1	85161	SEMI-CIRCLE, WLDT, MD
B	1	85151	A FRAME, WLDT, MD
C	2	85510	CYL, 2.5-6, 1.5 ROD
D	4	81874	PIN, 1.25 X 4.00
E	1	81873	PIN, 1.25 X 9.00
F	2	81875	PIN, 1.00 X 3.25
G	1	85509	PIN, 1.75 X 5.25
H	12	82150	PIN, EXPANSION, 1/4 X 2
J	2	85249	PIN, 1.00 X 3.38
K	2	85515	HOSE ASSM, 3/8
L	2	85516	HOSE ASSM, 3/8
M	4	84786	ELBOW, 08MB/06MJ
N	2	85513	TEE, 06MJ/06MJ/06MJ-BLKHD
P	2	85514	CAP, 06FJ
Q	8	88308	BRACKET, FITTING
R	2	50330	SCREW,CP,HX,5/16NC X 3/4
S	2	74333	NUT,FLG,WHIZLOCK,5/16-18NC
T	2	52387	SCREW,CP,HX,5/16 X 2 1/2
U	1	87748	VALVE,CUSHION,1800 PSI
V	2	312401	TEE,06MJ/06FJX/06MJ
W	4	301009	ADAPTER, 06MJ/08MB
X	2	308203	NUT, 06, BULKHEAD



NO CUSHION VALVE



W/CUSHION VALVE

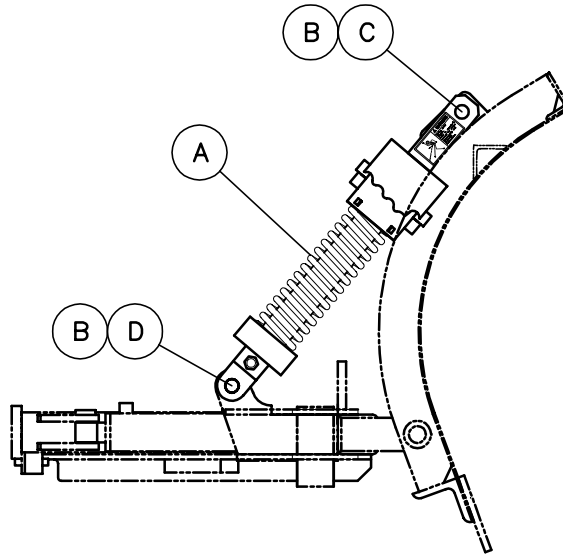


RSPMD06

TRIP SPRING ASSEMBLY

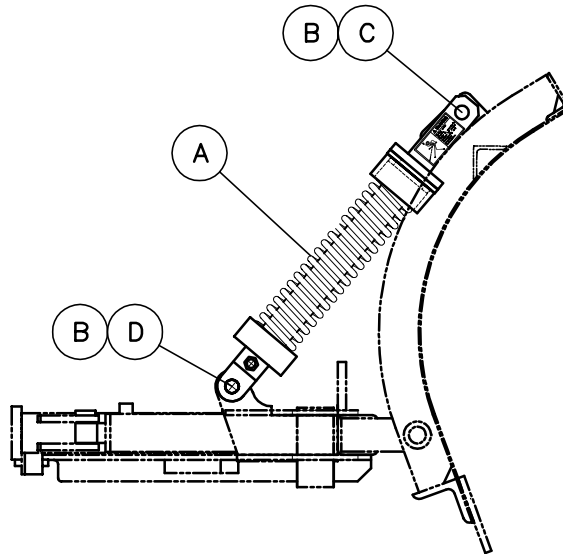
BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	2	85182	SPRING ASSM, ADJUSTABLE
B	4	81875	PIN, 1.00 X 3.25
C	2	50601	PIN, COTTER, 1/4 X 2 1/4
D	2	82150	PIN, EXPANSION, 1/4 X 2



BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	2	85369	SPRING ASSM, NON-ADJUSTABLE
B	4	81875	PIN, 1.00 X 3.25
C	2	50601	PIN, COTTER, 1/4 X 2 1/4
D	2	82150	PIN, EXPANSION, 1/4 X 2



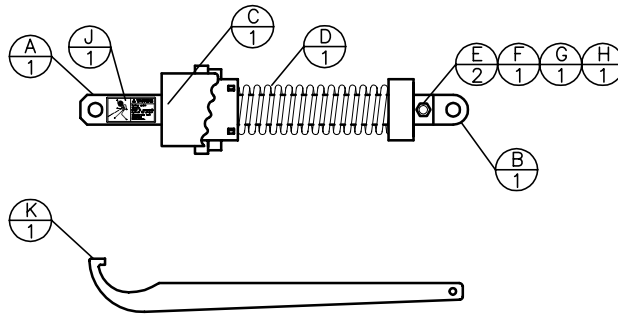
RSPMD09

COMPRESSION SPRING ASSEMBLY

SPRING ASSM, ADJUSTABLE PN-85182

BILL OF MATERIALS

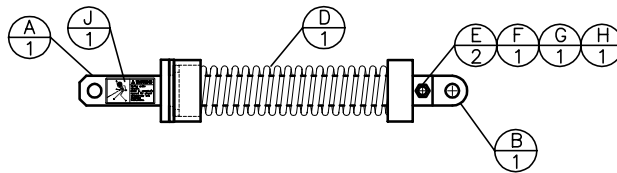
ITEM	QTY.	PART NO.	DESCRIPTION
A	1	85181	BAR, SPRING, WLDT
B	1	85177	GUIDE, SPRING, WLDT
C	1	85173	TUBE, ADJUSTING, WLDT
D	1	82272	SPRING, COMPRESSION
E	2	81881	BAR, KEEPER
F	1	76487	SCREW,CP,HEX, 5/8NCX3, GR8
G	1	10549	WASHER, LOCK, 5/8,
H	1	10563	NUT, HEX, 5/8NC
J	1	81679	DECAL,WARNING,SPRING
K	1	81642	WRENCH



SPRING ASSM, NON-ADJUST PN-85369

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
B	1	85370	GUIDE, SPRING, WLDT, NON-ADJ
D	1	82272	SPRING, COMPRESSION
E	2	81881	BAR, KEEPER
F	1	76487	SCREW,CP,HEX, 5/8NCX3, GR8
G	1	10549	WASHER, LOCK, 5/8,
H	1	10563	NUT, HEX, 5/8NC
J	1	81679	DECAL,WARNING,SPRING

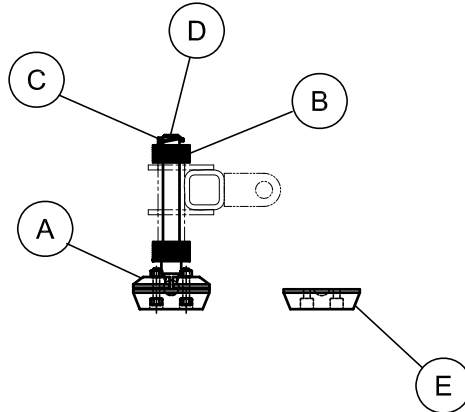


CARRYING DEVICES

COMPLETE MUSHROOM SHOE
W/JACK ASSY P/N 85252

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	86026	MUSHROOM SHOE ASSY
B	29	10006	WASHER, FLAT, STD, 1 1/4 ID
C	1	88598	PIN, LINCH, 3/8 X 9/16
D	1	88597	SHAFT W/BALL, MUSHROOM SHOE
E	1	86685	PLATE, WEAR, MUSHROOM SHOE

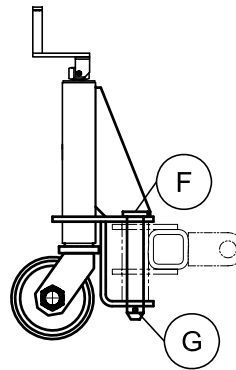
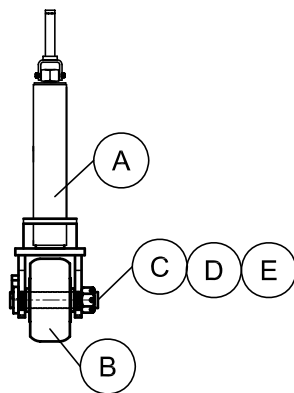


SKID SHOE

COMPLETE CASTER W/JACK
ASSY P/N 85720

BILL OF MATERIALS

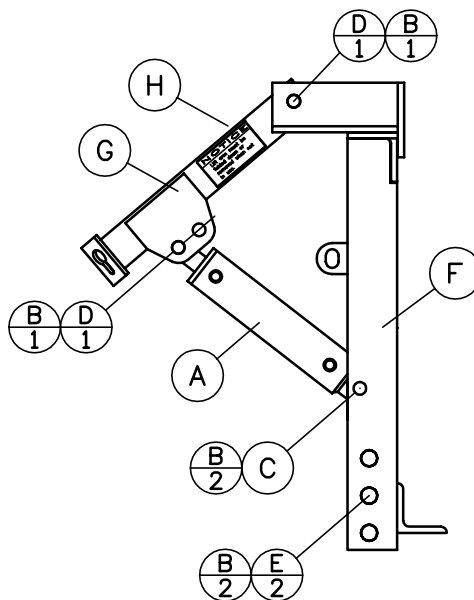
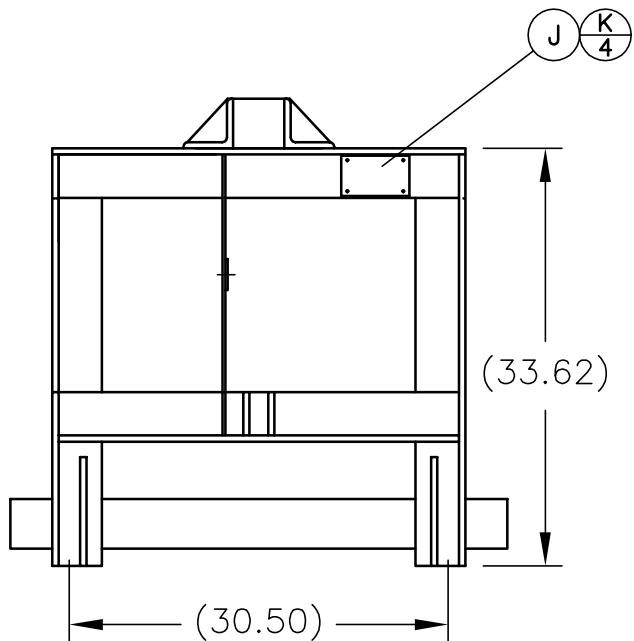
ITEM	QTY.	PART NO.	DESCRIPTION
A	1	114560	JACK, ASSY, MSP
B	1	85743	WHEEL, CASTER, 6"
C	1	00366	PIN, COTTER, 1/8 X 1 1/2
D	1	81546	NUT, SLOTTED, 1 1/4NF
E	1	82724	PIN, WLDT, CASTER
F	1	85752	PIN, CASTER, PIVOT
G	1	82150	PIN, EXPANSION, 1/4 X 2



PIN HITCH, TRUCK PORTION

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	81862	CYLINDER, 3-10,1.50, CHROME
B	6	50601	PIN, COTTER 1/4 X 2 1/4
C	1	81871	PIN, CYL 1.00 X 3.87
D	2	81872	PIN, HITCH, UPPER, 1.00 X 6.00
E	2	81874	PIN, 1.25 X 4.00
F	1	83122	HITCH, WLDT, PIN, TRUCK, 30.5, MD
G	1	85365	LIFT ARM, WLDT, MD
H	1	81673	DECAL, NOTICE, LIFT ARM
J	1	74474	PLATE, SERIAL,
K	4	50252	RIVET, POP, 5/32, SS

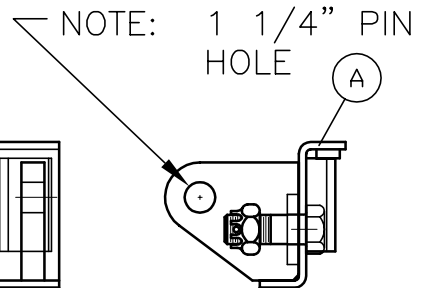
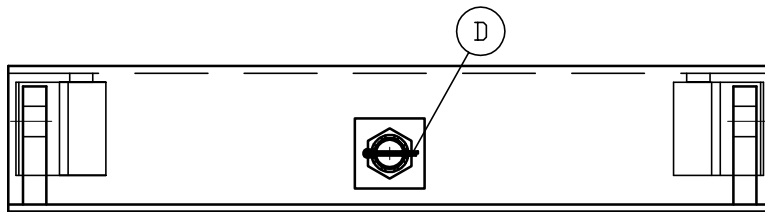
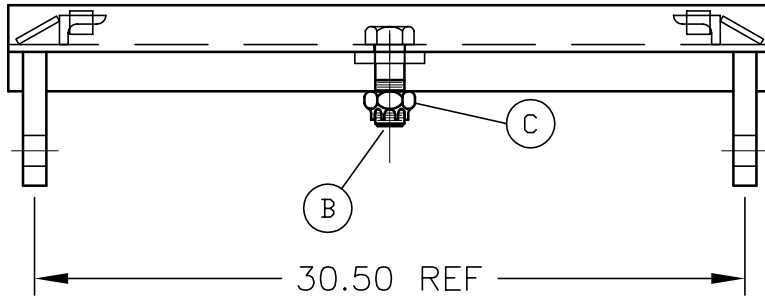


PIN HITCH, PLOW PORTION – 30.5" & 24"

COMPLETE ASSY: P/N 85539

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	85183	HITCH, WLDT, PIN, PLOW, 30.5
B	1	85537	SCREW, CP,HX, 1 1/4NC X 3 1/2
C	1	85538	NUT, CASTLE, 1 1/4NC, G8
D	1	00380	PIN, COTTER, 3/16 X 1 1/2

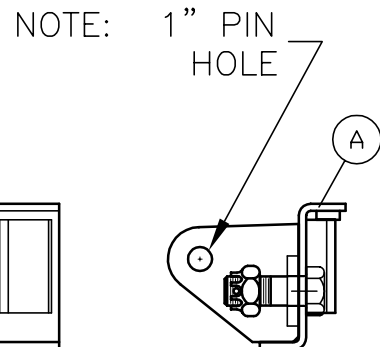
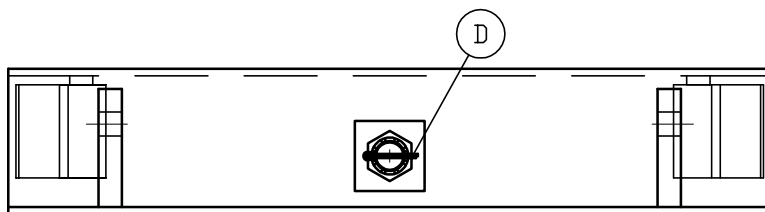
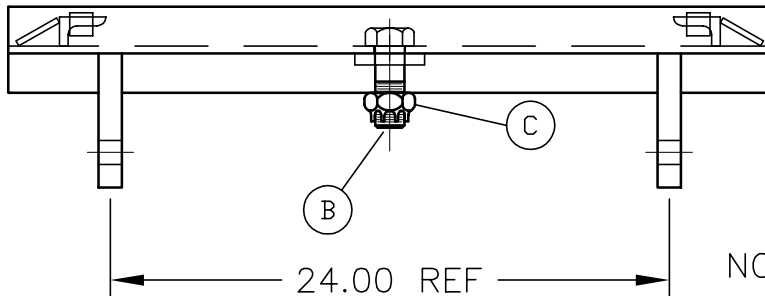


30.5" PIN WIDTH W/1 1/4" PIN HOLE

COMPLETE ASSY: P/N 96250

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	96248	HITCH,WLDT,PIN, 24", 1" PIN HOLE
B	1	85537	SCREW, CP,HX, 1 1/4NC X 3 1/2
C	1	85538	NUT, CASTLE, 1 1/4NC, G8
D	1	00366	PIN, COTTER, 1/4 X 2



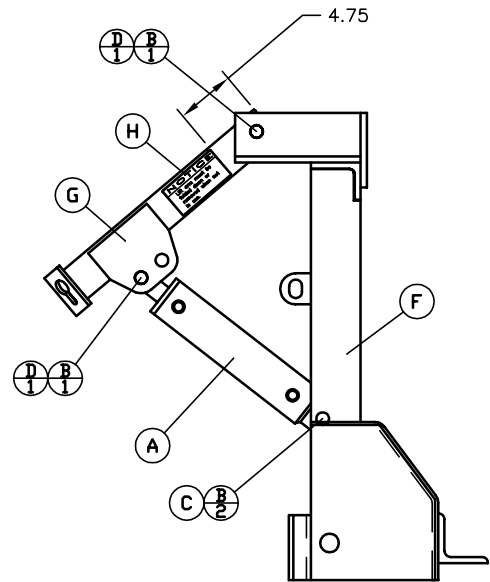
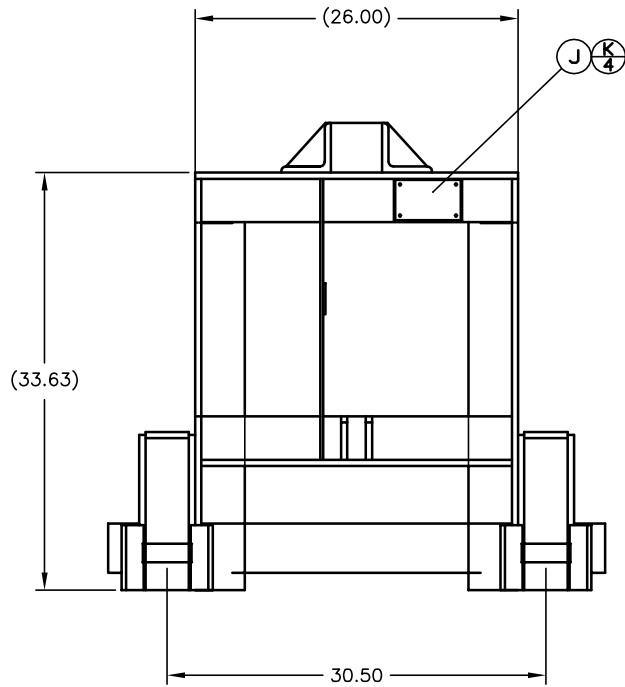
24" PIN WIDTH W/1" PIN HOLE

RSPMD03

QUICK HITCH, TRUCK PORTION

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	81862	CYLINDER, 3-10,1.50, CHROME
B	6	50601	PIN, COTTER 1/4 X 2 1/4
C	1	81871	PIN, CYL 1.00 X 3.87
D	2	81872	PIN, HITCH, UPPER, 1.00 X 6.00
E	2	81874	PIN, 1.25 X 4.00
F	1	82199	HITCH, WLDT, QUICK, TRUCK
G	1	85365	LIFT ARM, WLDT, MD
H	1	81673	DECAL, NOTICE, LIFT ARM
J	1	74474	PLATE, SERIAL,
K	4	50252	RIVET, POP, 5/32, SS



QUICK HITCH, PLOW PORTION

HITCH ASSM PN-85704

BILL OF MATERIALS

ITEM	QTY.	PART NO.	DESCRIPTION
A	2	00214	PIN, CLEVIS, 1/2 X 1 1/2
B	2	00215	PIN, COTTER, 1/8 X 1
C	2	10284	PIN, EXPANSION, 3/8 X 1 1/2
D	2	10558	WASHER, FLAT, STD, 1/2 ID
E	1	10824	PIN, HAIR, 1/8 X 2 11/16
F	8	11110	NUT, HEX, 1/2-20NF
G	2	11818	YOKE, CLEVIS, 1/2
H	2	82233	ROD, THREADED, 1/2 NF X 9.00
J	1	85709	HANDLE WLDT, LATCH
K	2	82241	SPRING, 1.00 OD X .50 ID
L	2	85716	BUSHING WLDT
M	1	84718	PIN, CLEVIS, 3/8 X 1
N	1	81018	GRIP, VINYL, 3/8 X 1 1/2
P	1	85537	SCREW, 1 1/4NC X 3 1/2
Q	1	85538	NUT, CASTLE, 1 1/4NC
R	1	00380	PIN, COTTER, 3/16 X 1 1/2

*NOTES = QUALITY CHECK POINTS!

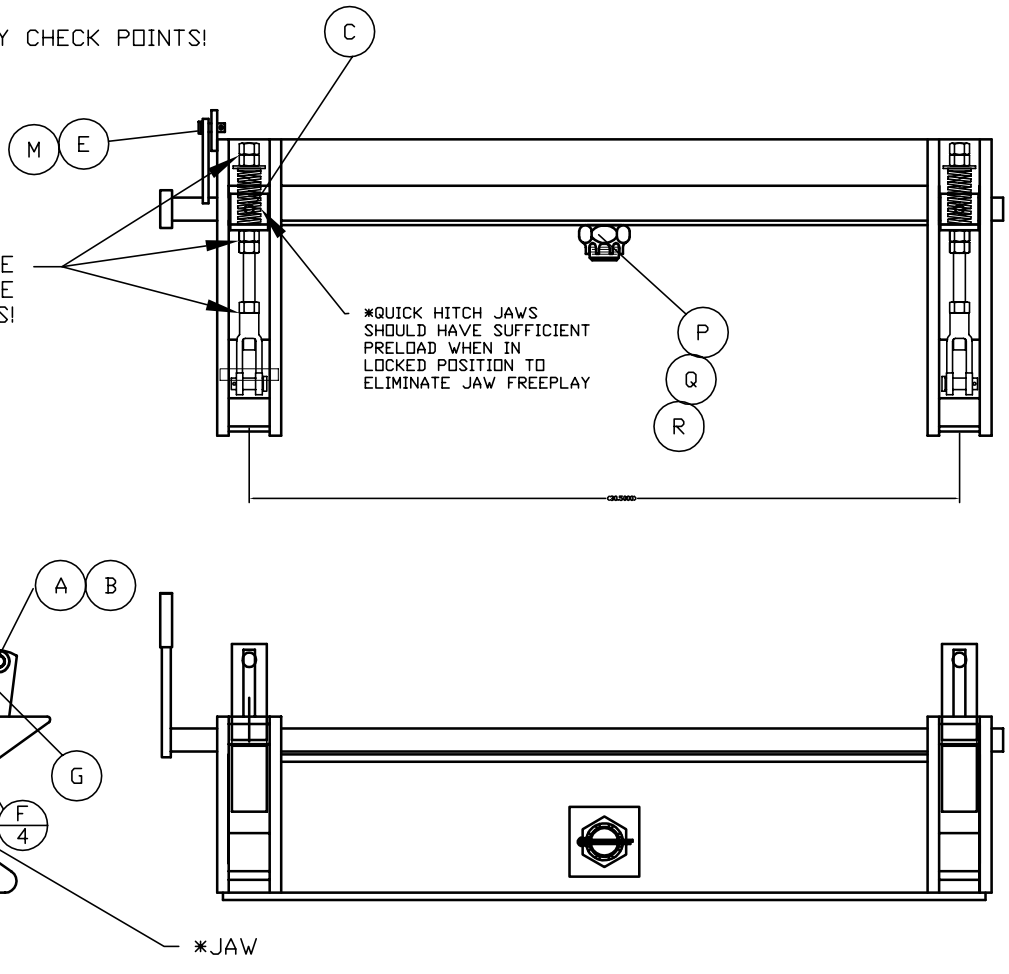
*NOTE: MAKE SURE ALL JAM NUTS ARE LOCKED BOTH SIDES!

*QUICK HITCH JAWS SHOULD HAVE SUFFICIENT PRELOAD WHEN IN LOCKED POSITION TO ELIMINATE JAW FREEPLAY

*PIN HERE FOR "LOCKED POSITION"

*JAW

*ADJUST HERE FOR PRELOAD ON JAW IN "LOCKED" POSITION.



12V/HYD POWER PACK FOR PIN & QUICK HITCH

PARTS LIST

ITEM	QTY.	PART NO.	DESCRIPTION
A	2	50335	SCREW, CP, HX, 3/8 X 1
B	2	81914A	COUPLING, QD, FEMALE, 06NPT
C	2	81914B	COUPLING, QD, MALE, 06NPT
D	3	85516	HOSE, ASM, 06FJX/06FJX, 30.00
E	1	85780	PLATE, MOUNT, MOTOR
F	1	86242	PUMP, 12V/HYD W/CONTROL BOX
G	3	86246	ELBOW, 04MP/06MJ
H	2	86337	ADAPTER, 06MJ/06MP
J	1	84786	ELBOW, 08MB/06MJ
K	1	85775	BREATHER, #8 ORB
L	2	314401	ADAPTER, 06MP/06FJX
M	1	88662	FUSE, 200 AMP
N	1	88663	HOLDER, FUSE

COMPLETE POWER
PACK P/N 86245

4 GAUGE WIRE
(DEALER SUPPLIED)

TO "+" ON
BATTERY

TO "-" ON
BATTERY

TO LARGE POST
ON DRIVERS SIDE
OF SOLENOID

PLUG

CONTROL
BOX

A
2

E
REF

G
REF

D
REF

D

B
2

C
2

TO PLOW

H
2

L
2

D

D

HITCH

LIFT CYLINDER

C1 OUTLET
PLOW LEFT
ROTATION

J

K

C2 OUTLET
PLOW RIGHT
ROTATION

G
3

C3 OUTLET
PLOW LIFT

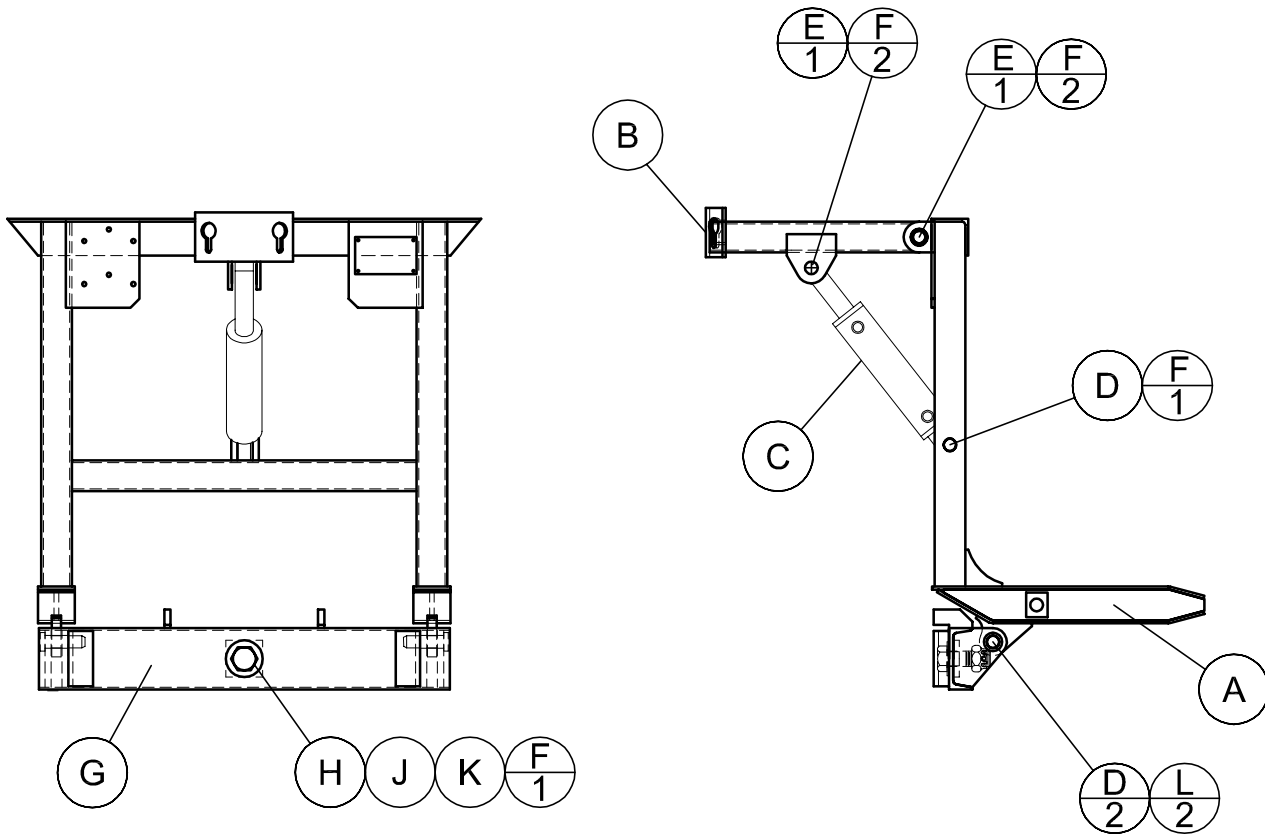
MSP19

REMOVABLE HITCH,FORD,PLOW PORTION

HITCH ASSM PN-86139

BILL OF MATERIALS

ITEM	QTY	PART NO	DESCRIPTION
A	1	85189	HITCH, WLDT, REMOVABLE
B	1	86616	LIFT ARM, WLDT
C	1	85510	CYLINDER, 2.5-6, 1.50,NITRIDED
D	3	81875	PIN, 1.00 X 3.25
E	2	81870	PIN, 1.00 X 4.62
F	6	00380	PIN, COTTER, .18 X 1.5
G	1	85864	HITCH,WLDT,PIN,30 1/2"
H	1	85537	SCREW, 1 1/4NCx 3 1/2, W/HOLE
J	1	85538	NUT,CASTLE, 1 1/4NC, G8
K	1	10006	WASHER,FLAT,STD, 1 1/4 ID
L	2	82150	PIN,EXPANSION, 1/4 X 2

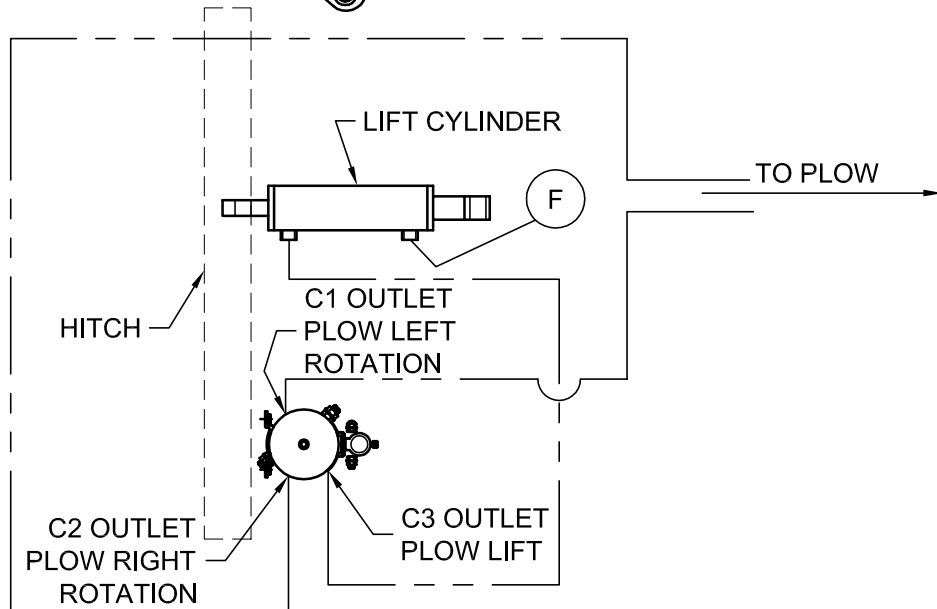
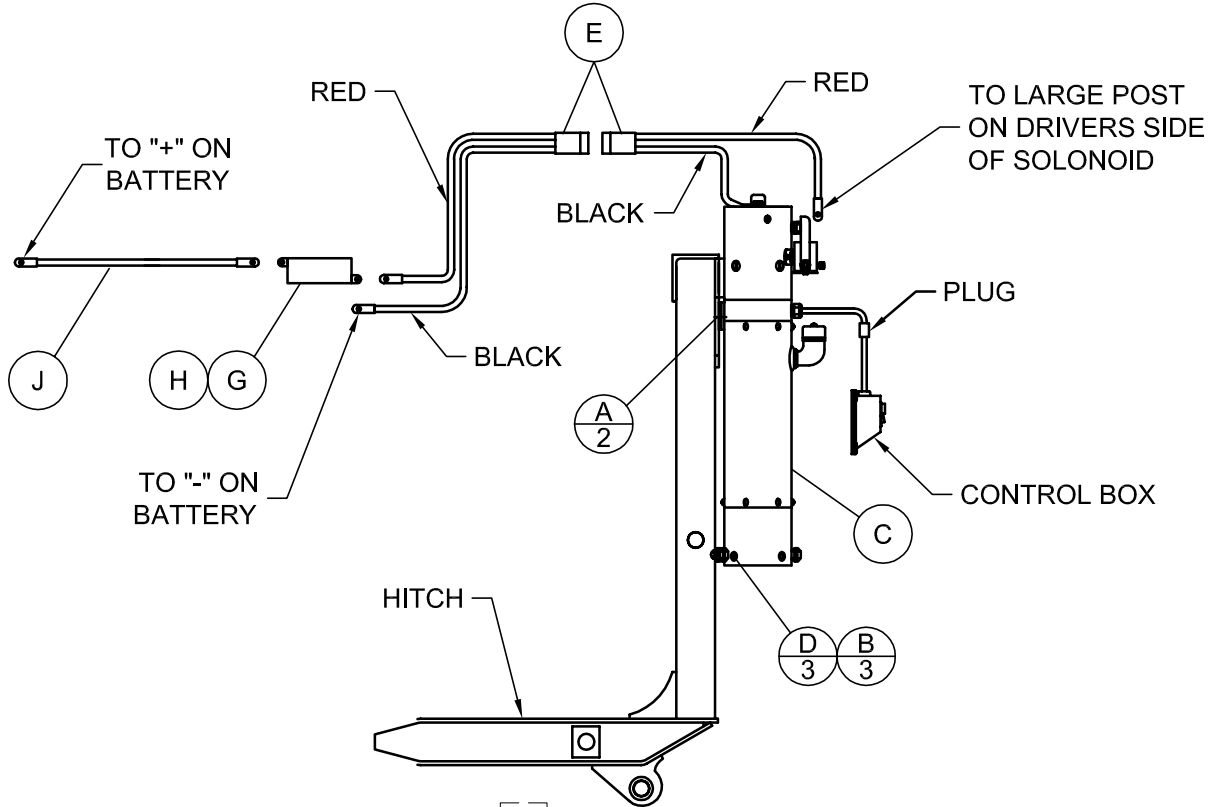


12V/HYD POWER PACK FOR FORD HITCH

PARTS LIST

ITEM	QTY.	PART NO.	DESCRIPTION
A	2	50335	SCREW, CP, HX, 3/8 X 1
B	3	85516	HOSE, ASM, 06FJX/06FJX, 30.00
C	1	86242	PUMP, 12V/HYD W/CONTROL BOX
D	3	86246	ELBOW, 04MP/06MJ
E	1	86248	CABLE, ASSY
F	1	85775	BREATHER, #8 ORB
G	1	88662	FUSE, 200 AMP
H	1	88663	HOLDER, FUSE
J	1	88664	CABLE, BATTERY, 20"

COMPLETE POWER
PACK P/N 86247



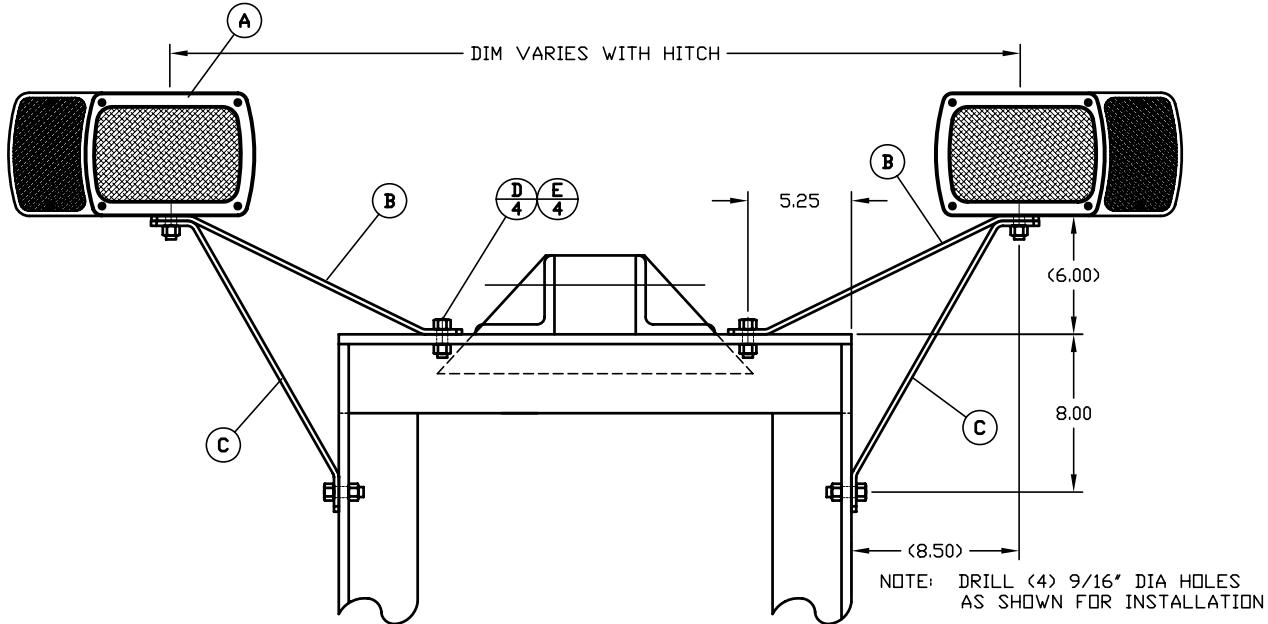
LIGHT PACKS

LIGHT PACK, QUICK/PIN HITCH

BILL OF MATERIALS

87503

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	85868	LIGHT KIT
B	2	87501	BRACKET,LIGHTING,UPPER
C	2	87502	BRACKET,LIGHTING,LOWER
D	4	50342	SCREW,CP,HX,1/2NC x 1 1/2,G5
E	4	51387	NUT,CENTERLOCK, 1/2-13NC

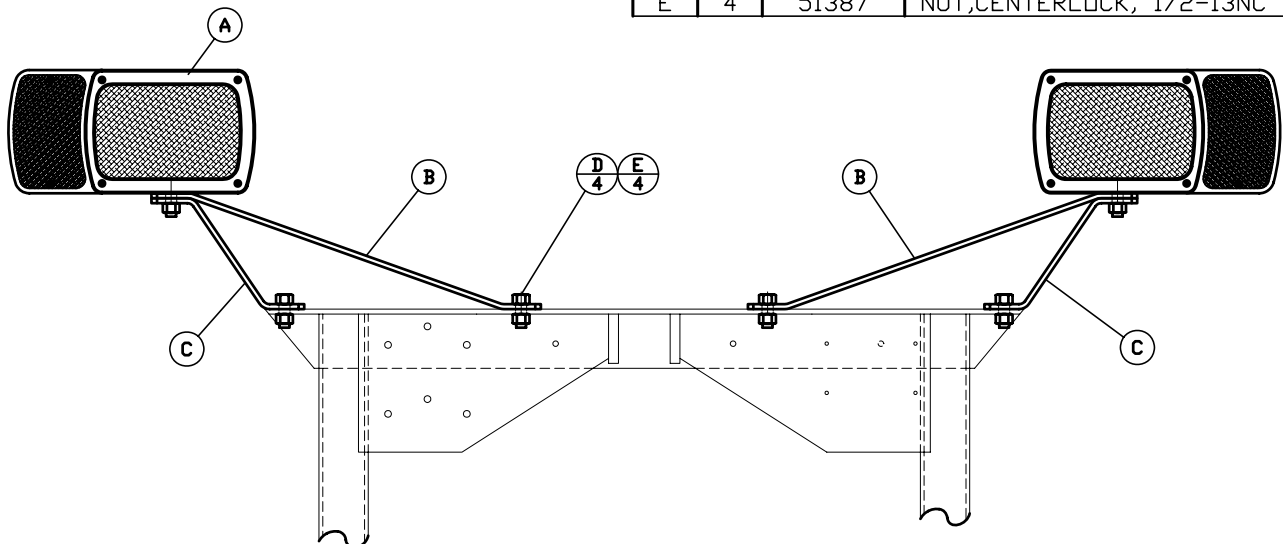


LIGHT PACK, FORD HITCH

BILL OF MATERIALS

85867

ITEM	QTY.	PART NO.	DESCRIPTION
A	1	85868	KIT, LIGHT, SNOWPLOW
B	2	85865	BRACKET,LIGHTING,UPPER
C	2	85866	BRACKET,LIGHTING,LOWER
D	4	50341	SCREW,CP,HX,1/2NC x 1 1/4,G5
E	4	51387	NUT,CENTERLOCK, 1/2-13NC



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BOLT TORQUE DATA

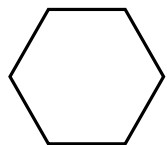
The chart provided contains information concerning standard hardware used on this machine. It is recommended that all fasteners be tightened to the torque values specified. The grade of the bolt is identified by the markings on the head of the bolt.

GENERAL BOLT TORQUE DATA IN FT/LB.

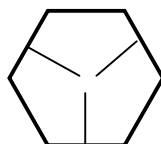
BOLT SIZE	SAE-GRADE 2		SAE-GRADE 5		SAE-GRADE 8	
	DRY	LUB	DRY	LUB	DRY	LUB
1/4-20	5	4	8	6	12	9
1/4-28	6	5	9	7	13	10
5/16-18	11	8	17	13	25	18
5/16-24	12	9	19	14	25	20
3/8-16	20	15	30	23	45	35
3/8-24	23	17	35	25	50	40
7/16-14	30	24	50	35	70	50
7/16-20	35	25	55	40	80	60
1/2-13	50	35	75	55	110	80
1/2-20	55	40	90	65	120	90
9/16-12	70	55	110	80	150	110
9/16-18	80	60	120	90	170	130
5/8-11	100	75	150	110	220	170
5/8-18	110	85	170	130	240	180
3/4-10	175	130	260	200	380	280
3/4-16	195	145	300	220	420	320
7/8-9	165	125	430	320	600	460
7/8-14	185	140	470	350	660	500
1-8	250	190	800	600	900	680
1-14	270	200	700	530	1000	740

NOTE:

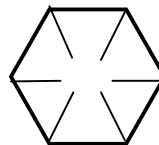
1. Multiply by 1.356 for metric N-M.
2. Do not use above values in place of those specified in other sections of this manual.



GRADE 2
(PLAIN)



GRADE 5
(3 MARKS)



GRADE 8
(6 MARKS)

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