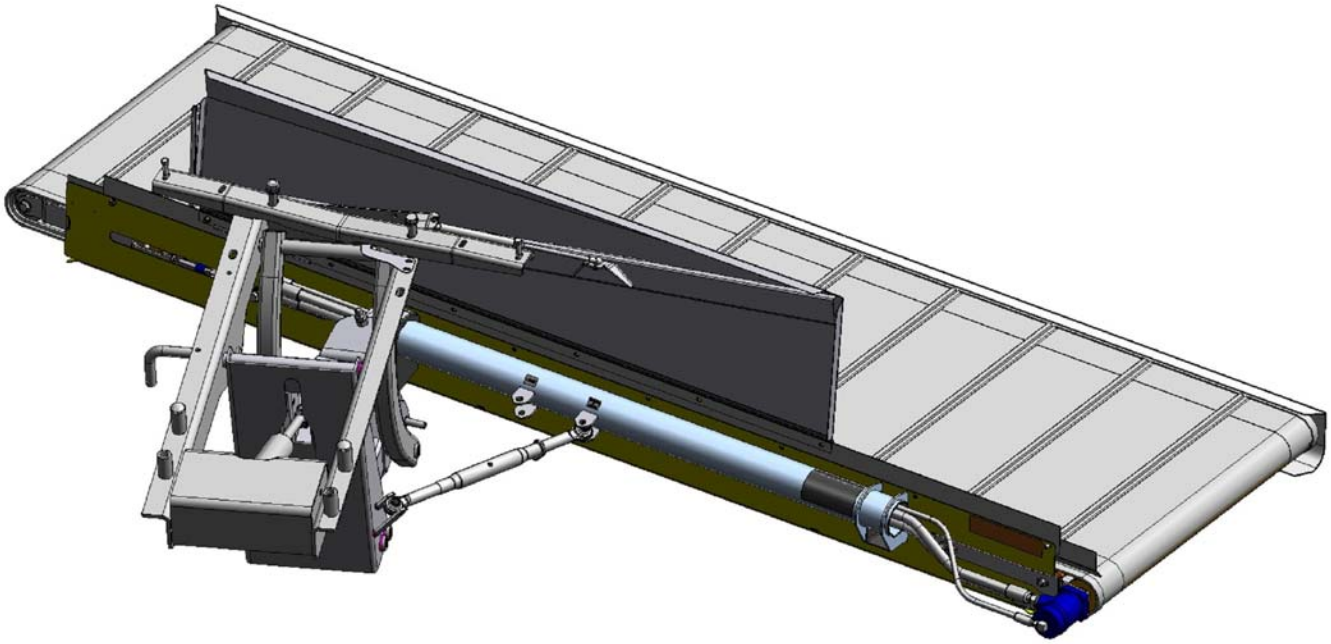
Double Windrow Attachment
For M150 & M200 Tractors

SET-UP INSTRUCTION / OPERATOR'S MANUAL / PARTS CATALOG

January, 2009

Part #169216 $15



MACDON DOUBLE WINDROW ATTACHMENT

MacDon M Series Windrower Tractor
DOUBLE WINDROW ATTACHMENT

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INTRODUCTION

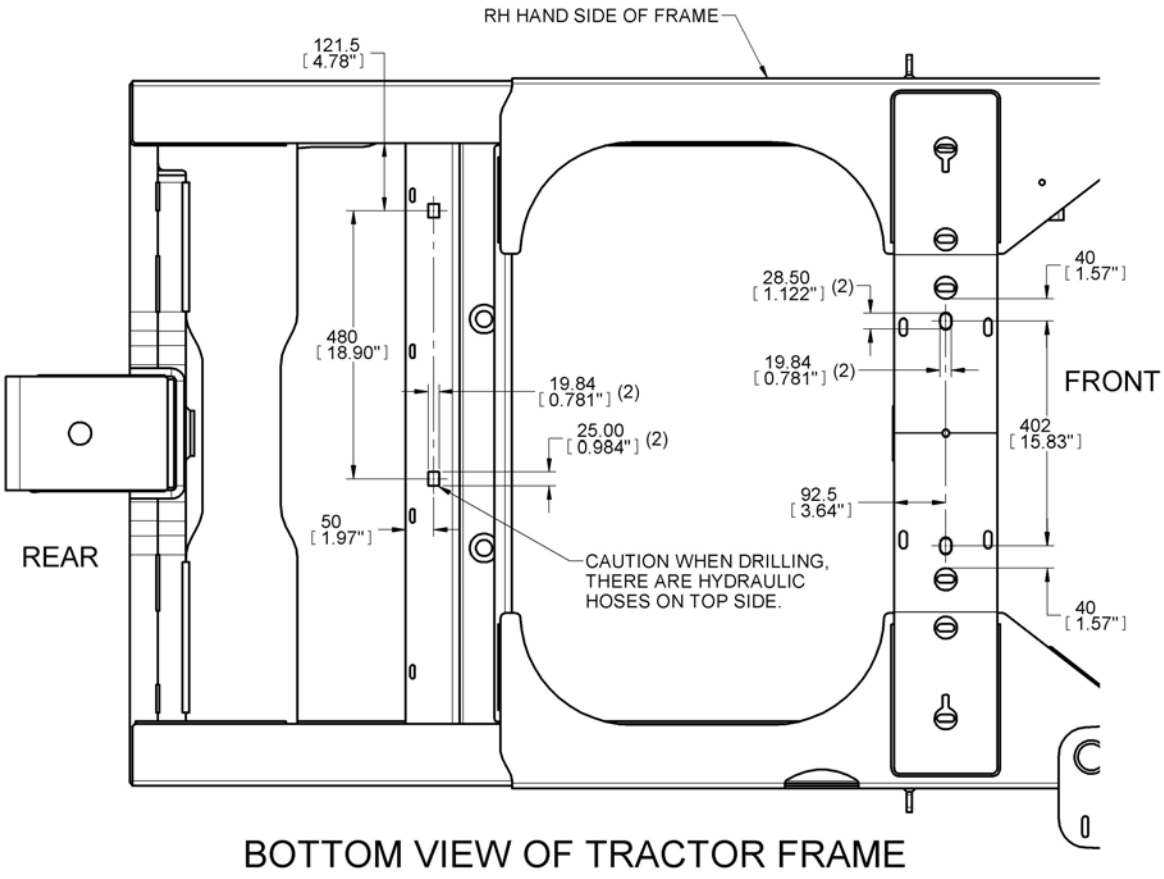
The double windrow attachment (DWA) allows the combining of two windrows of conditioned material close together to be picked up by a forage chopper. This unit may be mounted on the following MacDon-built windrower tractors: M150 & M200. The system is for use with Model A30, A40, R80 and D60 headers with HC10 hay conditioners. The conditioned crop is deposited onto the side delivery system draper and delivered to the side of the tractor when required. Raising the side delivery system shuts off the draper and allows the crop to be deposited between the tractor wheels as it would be without the side delivery system.

SET-UP INSTRUCTIONS

NOTE: This unit fits only the tractor models listed on page 1. It can not be installed on the M100 tractor model.

NOTE: This page refers to rework required for tractors built prior to Production Year 2008. For tractors built in 2008 and later, go to page 3.

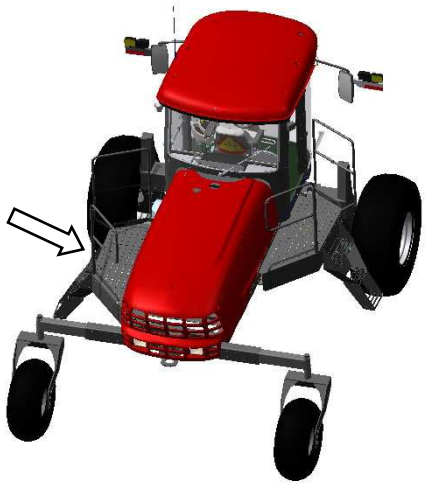
On pre-2008 built tractors:



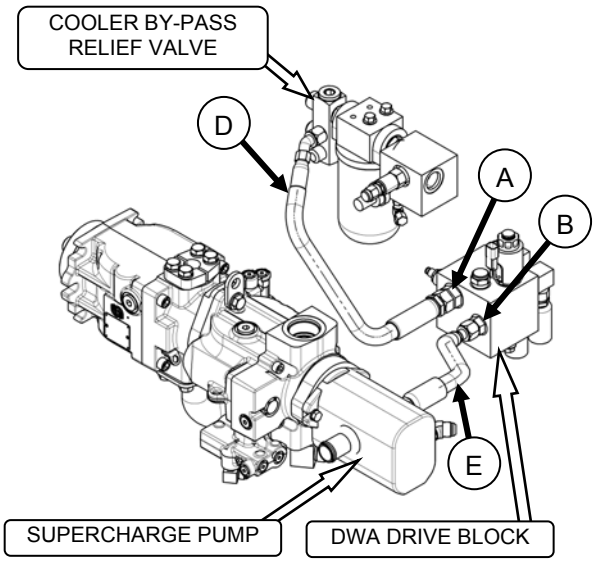
BOTTOM VIEW OF TRACTOR FRAME

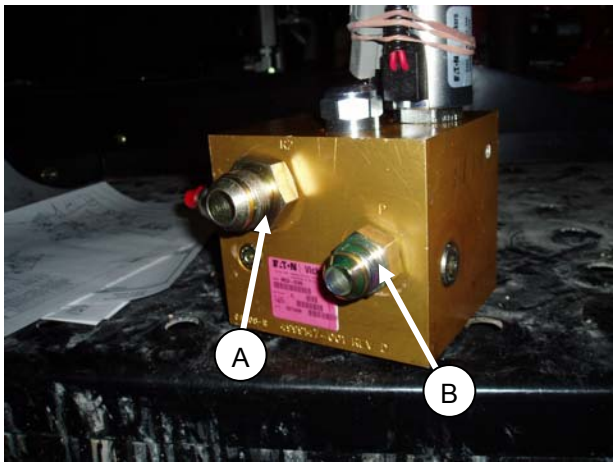
1. If not present, drill four holes 0.781” diameter at the locations shown above. There are hydraulic hoses above the two rear holes. **Make sure hoses are out of the way when drilling.** Ream/grind rear holes to make them square for square neck bolts. Slots are only required if holes do not line up with double windrow attachment frame.

Draper Drive Block Installation

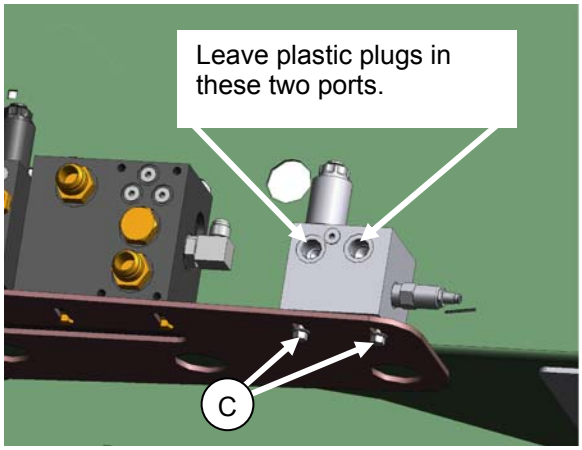


1. Move the left cab-forward platform to the open position for access to the hydraulic valve blocks. Ensure the platform latch is engaged in open position.

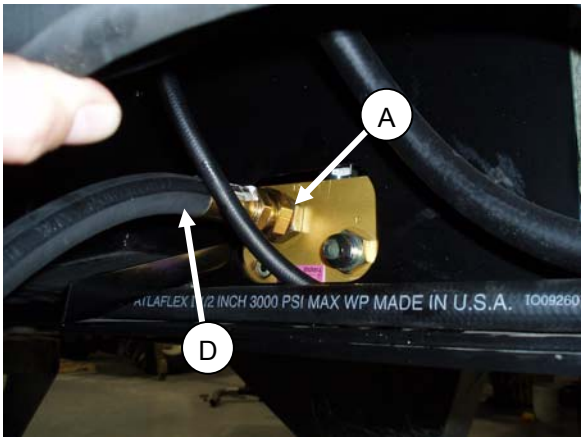




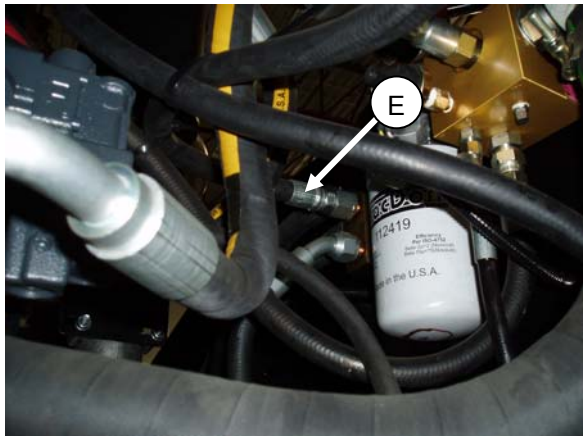
2. Install #12 ORB X #12 JIC fitting (A) to port "R2" on DWA (double windrow attachment) drive block. Install #10 ORB X #10 JIC fitting (B) to port "P" on DWA drive block.



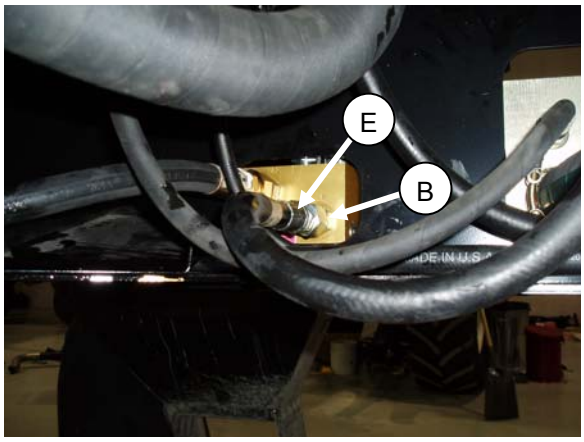
3. Install DWA drive block to tractor frame with 3/8" serrated flange head bolts (C). Fittings installed earlier point towards the tractor engine and relief valve on block points to rear of tractor.

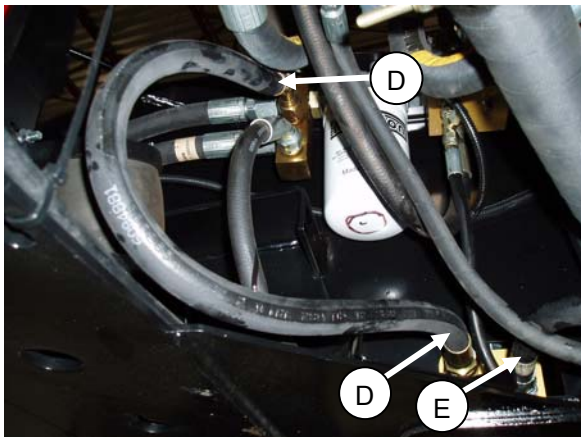


4. Install hose (D), supplied in kit, to fitting (A) at DWA drive block.



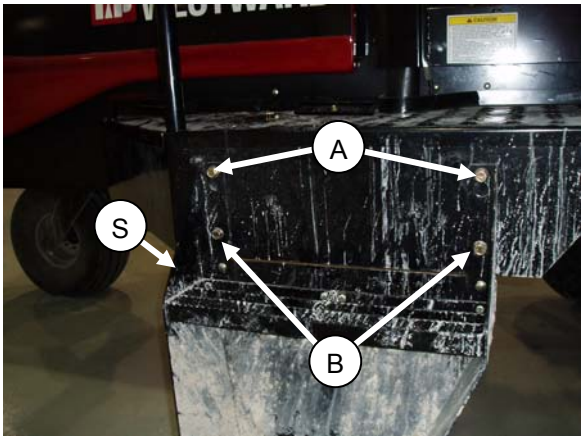
5. Remove hose (E) from cooler by-pass relief valve next to oil filter and connect to fitting (B) on DWA drive block. The other end of hose is connected to the super charge pump. **NOTE:** Access to hose (E) can be from underneath tractor or by raising tractor hood and working from the left hand platform.



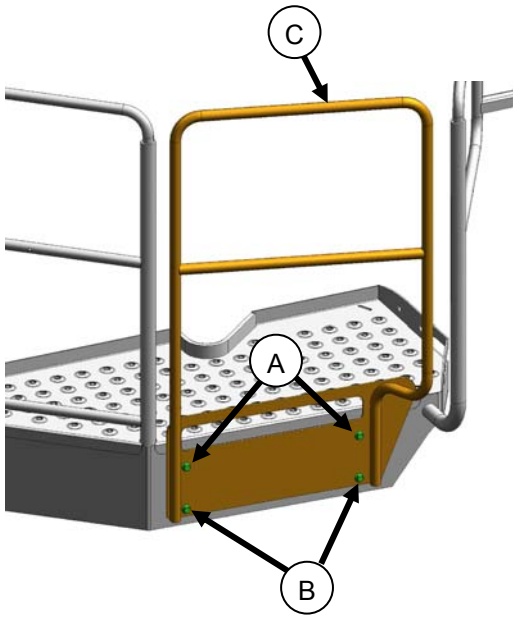


6. Install the other end of hose (D) to cooler by-pass relief valve next to oil filter. This is where hose (E) was disconnected.

Platform Rail Installation

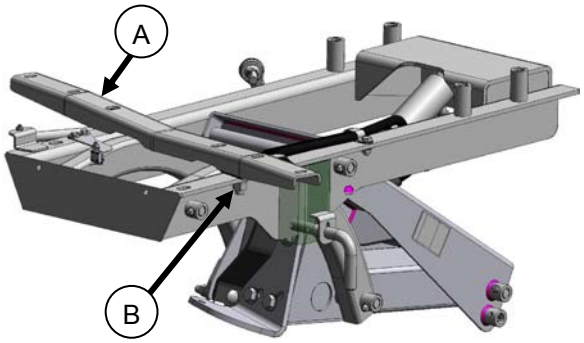


7. Remove right hand steps (S) from platform by loosening two top bolts (A) and removing two bottom bolts (B). Lift steps to detach at top keyhole slots (A). Retain bolts for next step.

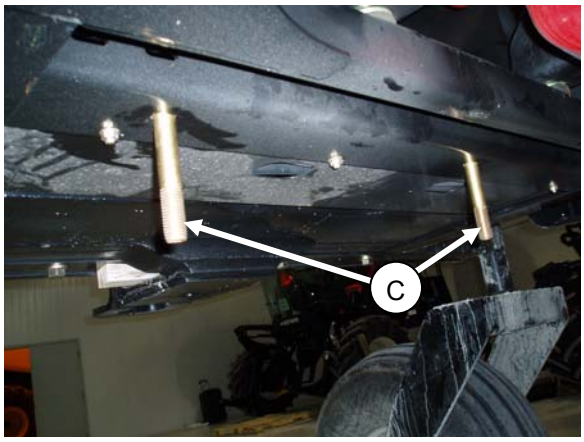


8. Install rail weldment (C) to right hand platform as follows: Hang rail weldment (C) by engaging keyhole slots on top bolts (A). Install two bottom bolts (B) and tighten all four bolts.

Linkage Installation

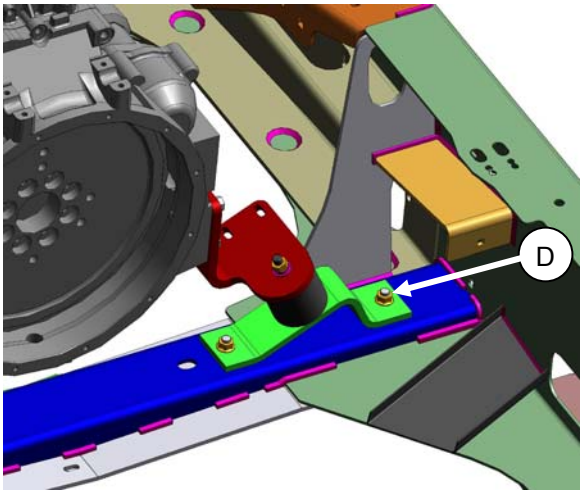


9. Remove support (A) by removing nut (B).

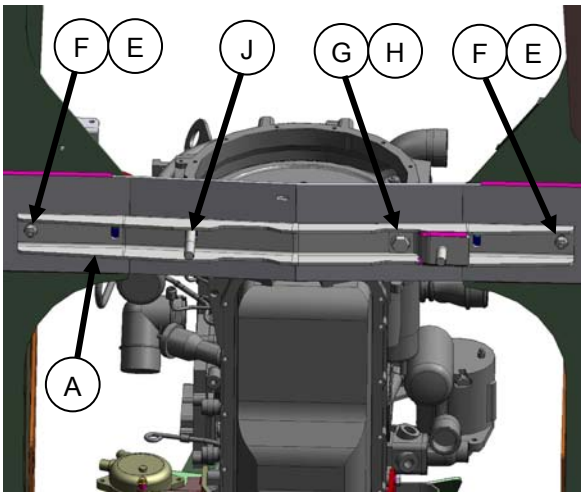


10. Locate in hardware kit two carriage head bolts, 3/4 x 4-1/2" long. Install bolts (C) in tractor frame member between the engine and caster wheels. **NOTE:** Hoses will have to be moved to get the bolts in place.

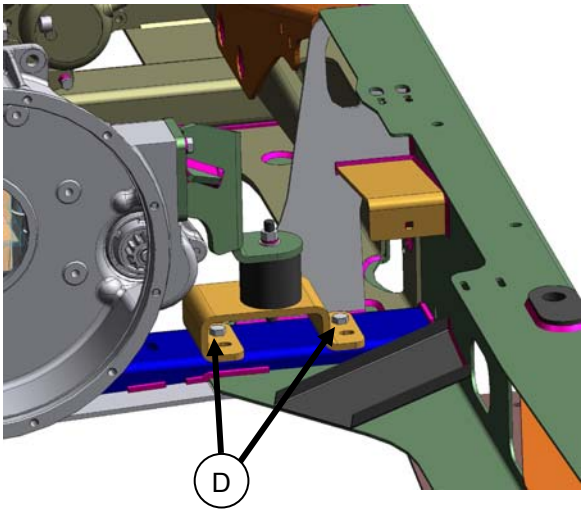
11. *If mounting on an M150 tractor, proceed with steps 12 and 13. If mounting on an M200 tractor, go to Step 14.*



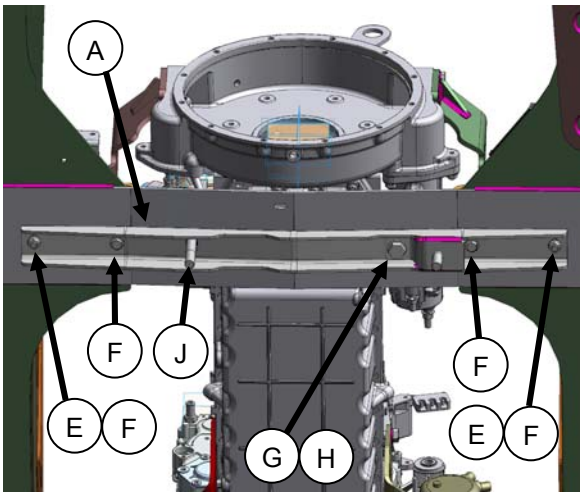
12. ***M150:*** Remove the outer bolt and nut from the front engine mount at (D) on both left and right sides. Retain nuts for reuse.



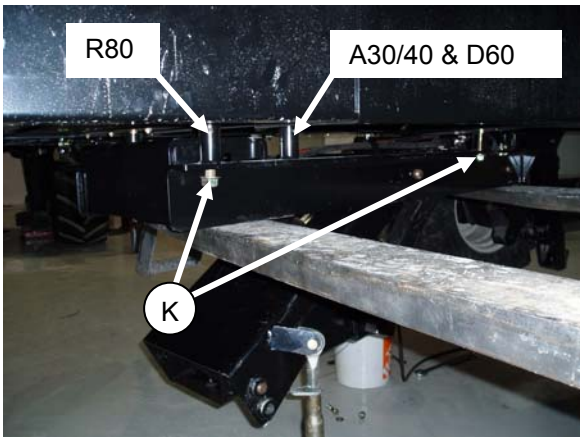
13. ***M150:*** Mount support (A) to tractor frame with two 1/2 x 2-3/4 inch long hex head bolts (F), flatwashers (under bolt heads) and nuts (E). These bolts replace the engine mount bolts (D) removed in step 12.
- From underneath, install a 3/4 x 3-1/2 inch long hex head bolt (G) with flat washer (H) under bolt head. Secure with flat washer, lock washer and nut on top side.
- From top side, install a 3/4 x 5-1/2 inch long hex head bolt (J) with flat washer (H) under bolt head. Do not install nut on bolt (J).
- Go to Step 16.



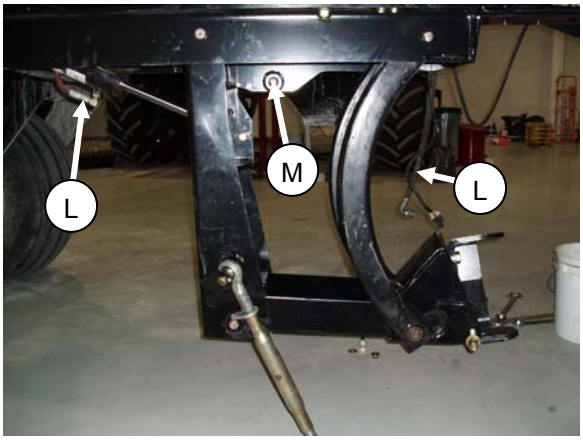
14. ***M200:*** Remove four bolts (D) from the front engine mounts, two on left side and two on right side. Retain nuts for reuse.



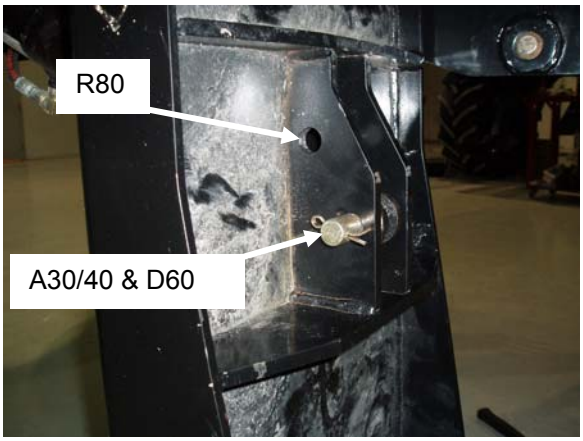
15. ***M200:*** Mount support (A) to tractor frame with four 1/2 x 2-3/4 inch long hex head bolts (F), flatwashers (under bolt heads) and nuts (E). These bolts replace the engine mount bolts (D) removed in step 14. Note that outer two bolts (F) are installed with heads on topside and inner two bolts (F) are installed with heads underneath.
    - From underneath, install a 3/4 x 3-1/2 inch long hex head bolt (G) with flat washer (H) under bolt head. Secure with flat washer, lock washer and nut on top side.
    - From top side, install a 3/4 x 5-1/2 inch long hex head bolt (J) with flat washer (H) under bolt head. Do not install nut on bolt (J).



16. Support linkage assembly with a forklift. **NOTE:** Make sure fork is not lifting against cylinder fitting. Align linkage with 4 bolts in tractor frame. Mount linkage in the most forward position (shown) if used with an R80 header and mount in the most rearward position if used with A30/40 or D60 header. Install four flatwashers, lock washers and nuts at (K) and tighten

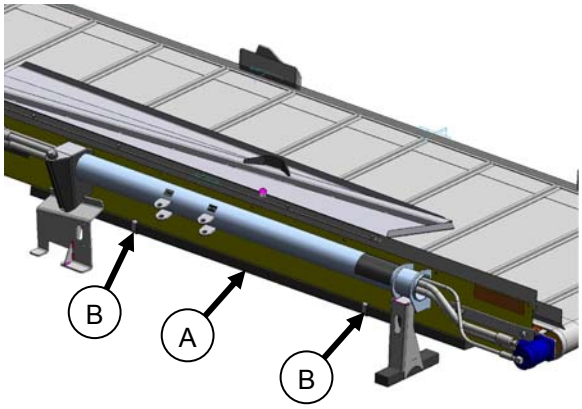


17. Lower linkage by hand by first pulling on safety pin (M) on the LH side of linkage. Remove plugs at end of lift cylinder hoses (L) if needed to remove air from hoses.

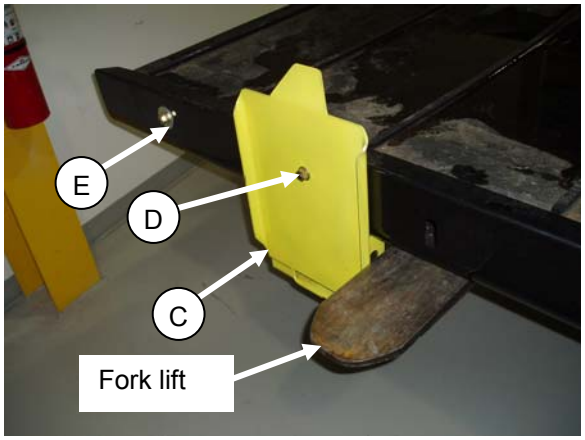


18. Cylinder pivot must be in the lower hole (shown) for A30/40 or D60 headers and upper hole for R80 headers. Move pin to upper hole if used with R80.

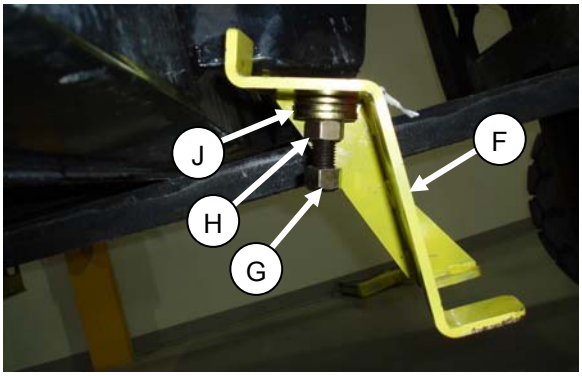
Deck Installation



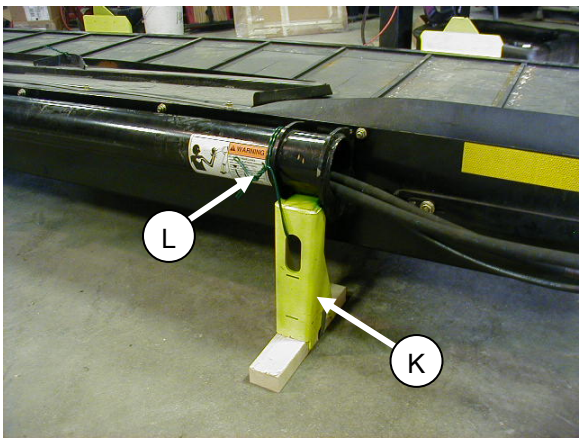
19. Remove 2X4 (A) by removing banding (B) and discard.



20. Support deck with fork lift. Forks should be inboard of shipping stand (C). Remove two shipping stands (C) at front deck by removing nut (D). Discard shipping stands. Re-install nut (D) with washer (E). Washers are supplied in hydraulic kit.

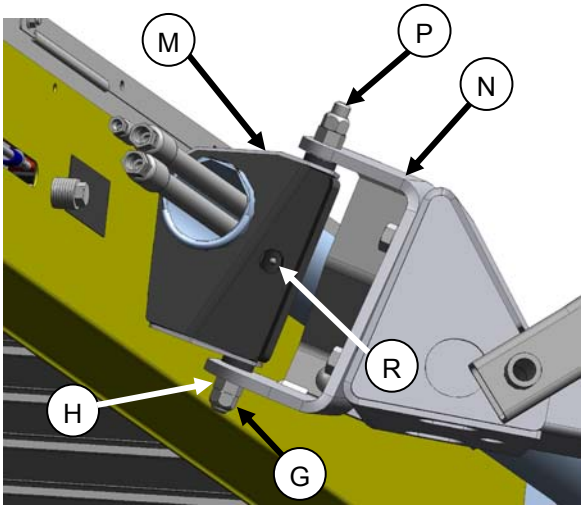


21. Remove shipping stand (F) at rear of deck by removing two nuts (G) and (H) and washers (J). Discard shipping stand and washers. Retain nuts for re-use.

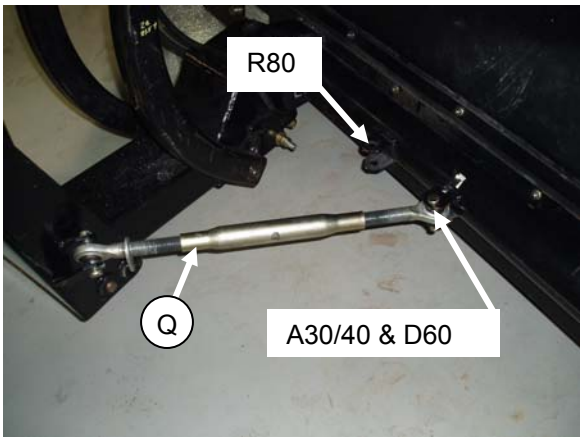


22. Remove shipping stand (K) by removing wire (L). Discard shipping stand.
23. Deck is now ready to be assembled to the linkage underneath the tractor. Position deck on RH side of tractor.

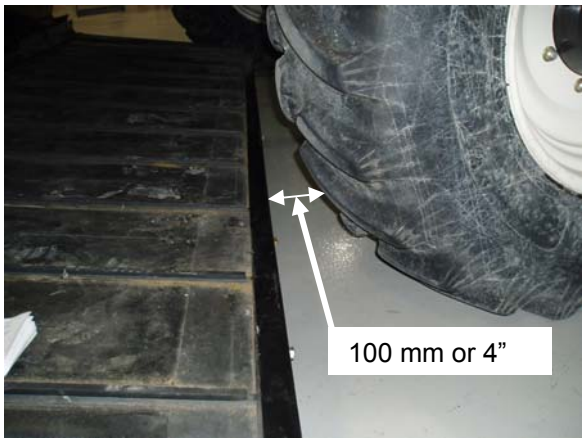
24. Support deck with a floor jack or fork lift at each end and position the deck pivot (M) in to the linkage clevis (N). Make sure there is a loose bushing inside the deck pivot.



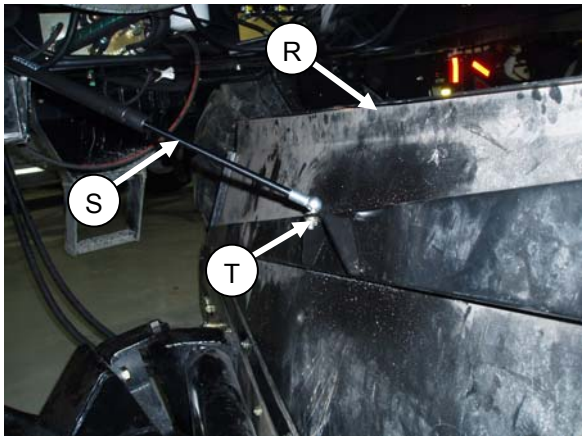
25. Align the deck pivot with holes in clevis by raising or lowering the floor jack and insert shaft (P). At bottom install one regular hex nut (H) and torque the nut to 250 ft-lbs. Then install lock nut (G) and tighten against nut (H). It is important that these nuts are properly torqued. Add grease to grease zerk (R).

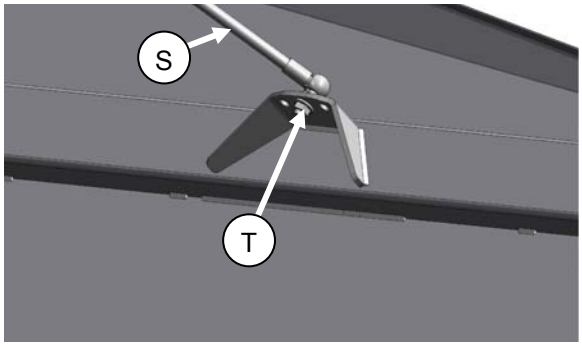


26. Attach turnbuckle (Q) from linkage to deck. Use outer pivot (shown) if used with A30/40 or D60 header and use inner pivot if used with an R80 header.



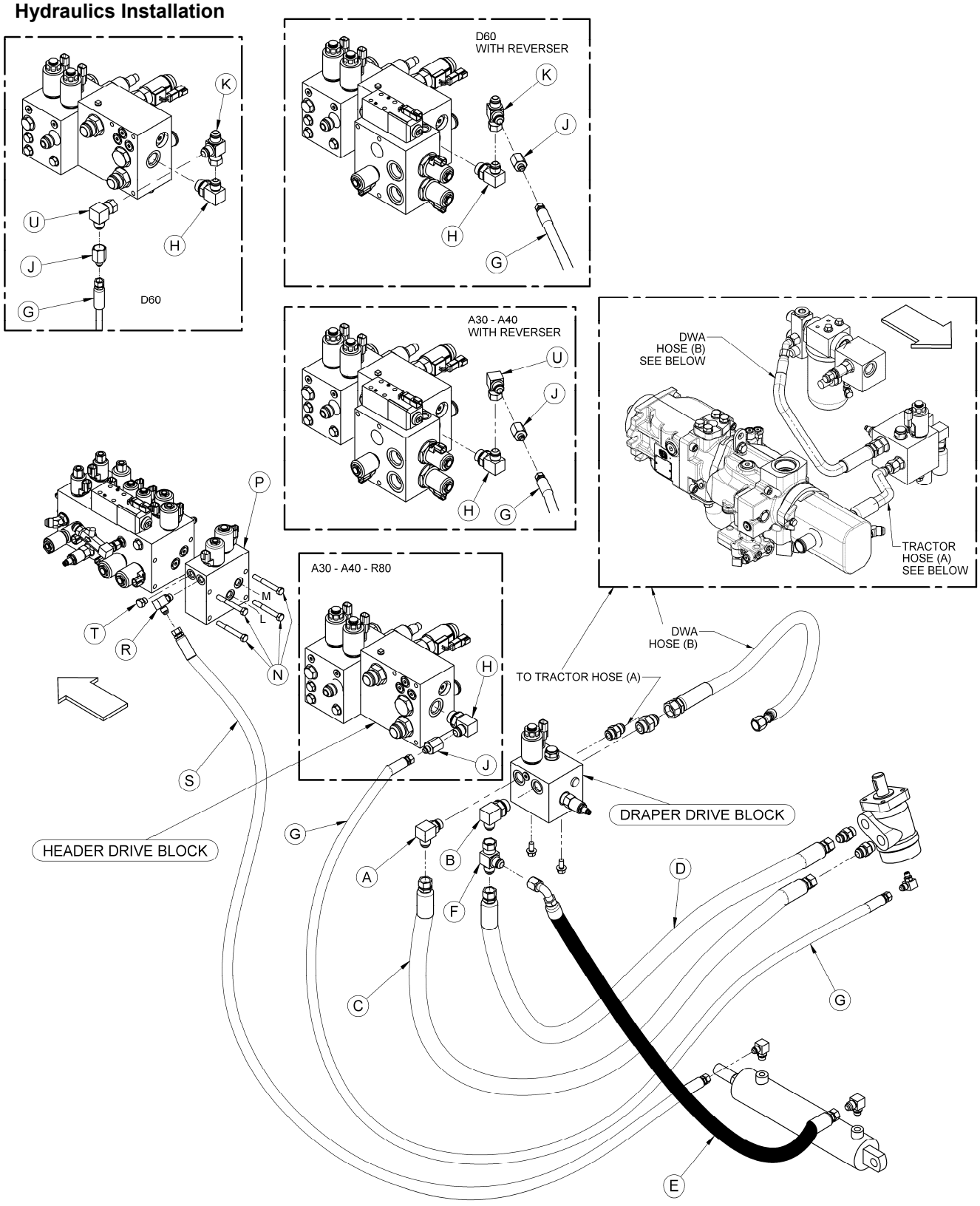
27. Adjust turnbuckle (Q) length so the deck is approximately 100 mm or 4” from the right hand drive tire. The turnbuckle length should be about 530 mm long for the R80 header and 630 mm long for the A30/40 or D60 header. Note: The lift cylinder is single acting and it is pressurized with the draper drive circuit. Therefore when the deck is setup for the R80 the tractor needs to be running for the deck to be in its most forward position. This adjustment can be fine-tuned when the hydraulics setup is complete.





28. Raise backsheet (R) on deck and install gas shock (S) in center hole with nut (T).

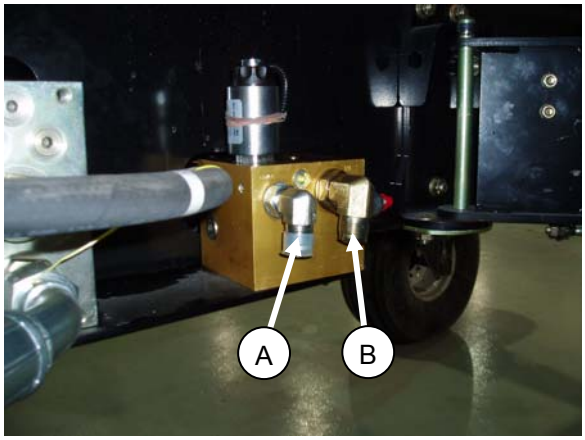
Hydraulics Installation



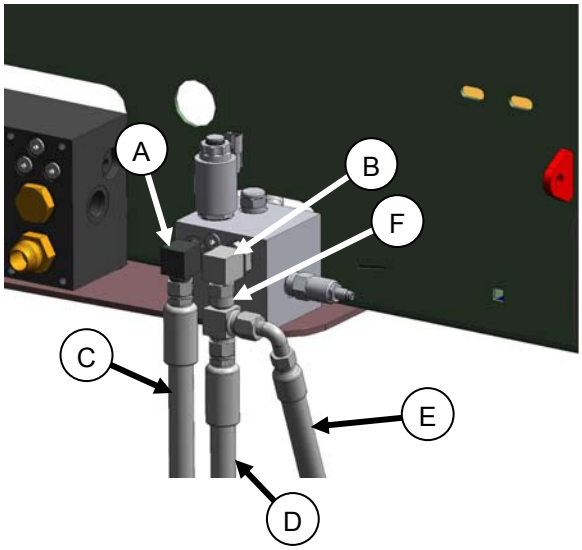
HYDRAULICS OVERVIEW

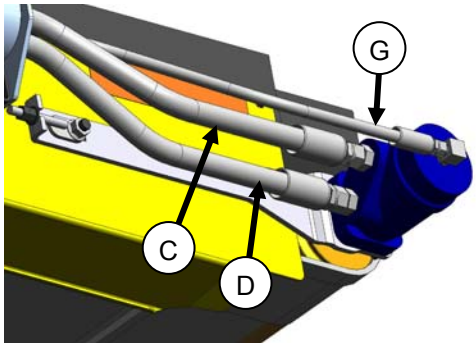
See following pages 9 to 11 for detailed installation instructions.
Balloons above match callouts on photos on pages 9 to 11.
See Maintenance/Service Section, page 22 for Hydraulic Schematic

Hydraulics Installation (continued)



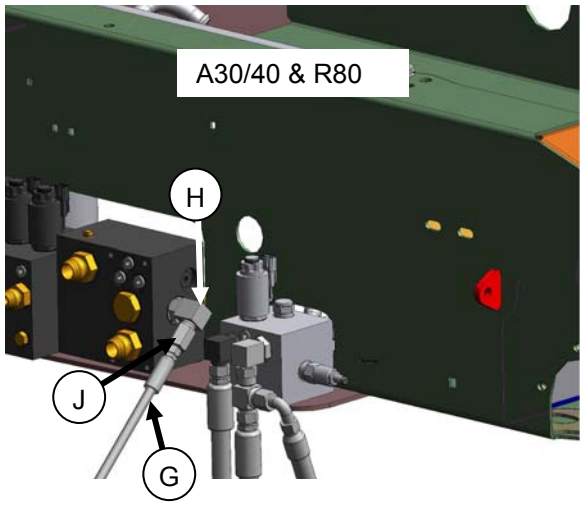
29. .Install #10 ORB X #10 JIC elbow (A) in port "DWA" on draper drive block. Install #12 ORB X #10 JIC elbow (B) in port "R1".



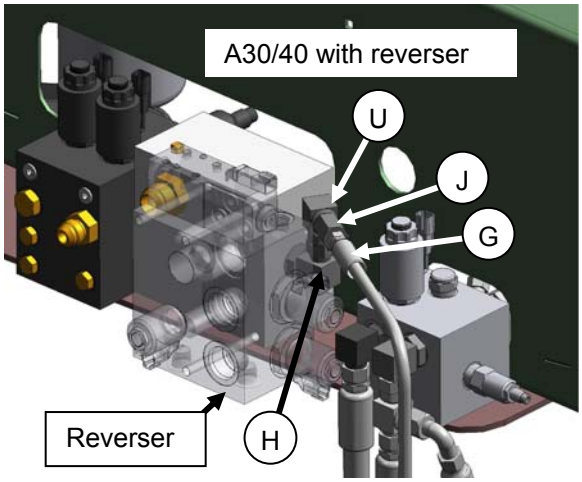


30. Install #10 tee (F) to elbow (B) as shown. Install pressure hose (C) from draper drive motor to elbow (A). Install return hose (D) to tee (F). Install ½" lift cylinder hose (E) to tee (F).

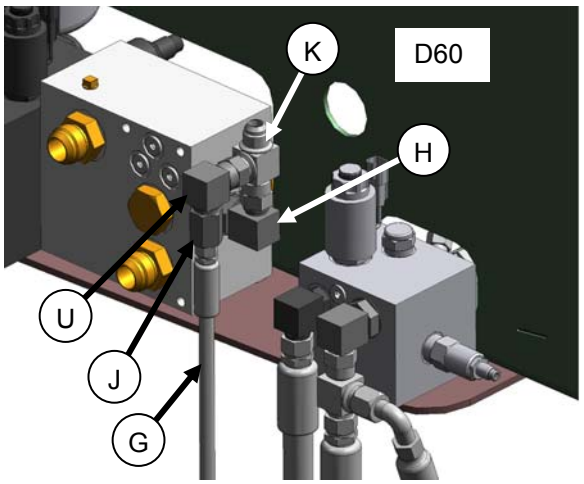
31. The installation of case drain hose (G) depends on the header configuration. See steps 28-31.



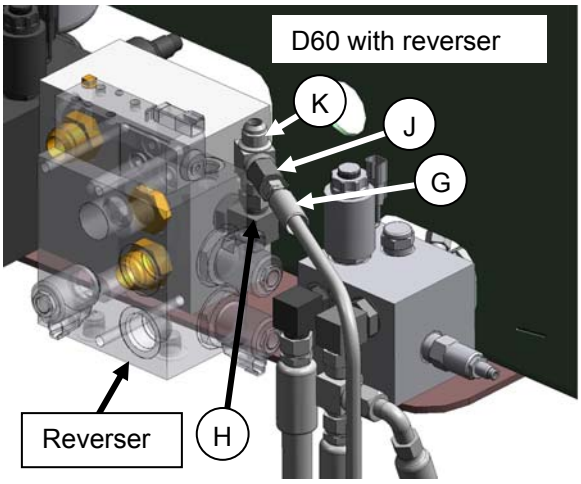
32. On A30/40 without reverser kit or R80 headers, connect case drain hose (G) to "T" port on the header drive block. First connect #12 ORB X #10 JIC elbow (H) to port "T", then install #10 JIC X #6 JIC reducer (J) to elbow (H). Finally install hose (G) to reducer (J).



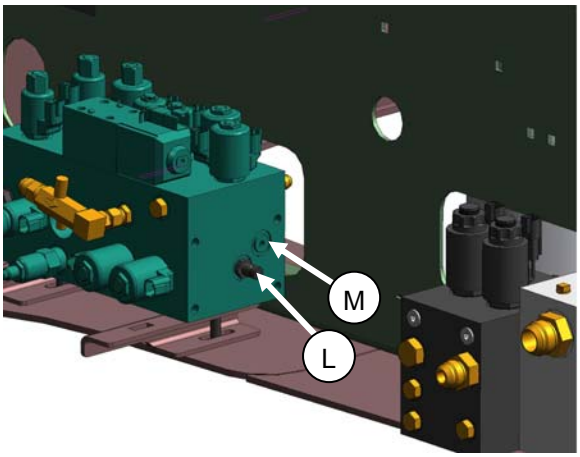
33. On A30/40 headers with reverser kit, connect case drain hose (G) to "T" port on the header drive block. First connect #12 ORB X #10 JIC elbow (H) to port "T", then install #10 JIC X #10 JIC elbow (U) to elbow (H) followed by #10 JIC X #6 JIC reducer (J). Finally install hose (G) to reducer (J). Make sure hose (G) is not rubbing against any fittings.



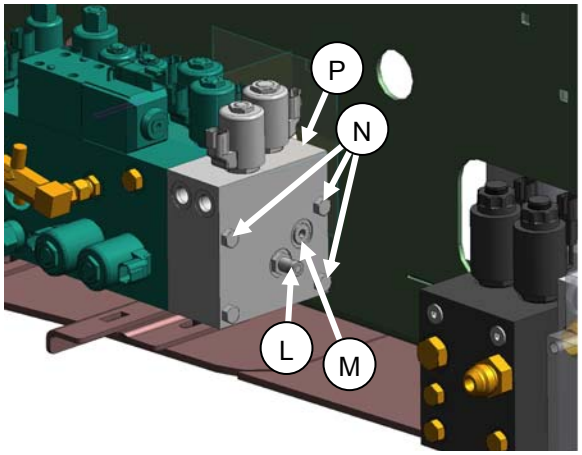
34. On D60 headers without reverser kit, connect case drain hose (G) to “T” port on the header drive block. Disconnect the reel return hose which is connected to port “T” and all the fittings in between. First connect #12 ORB X #10 JIC elbow (H) to port “T”, then install #10 JIC tee (K) to elbow (H) followed by #10 JIC X #10 JIC elbow (U) then #10 JIC X #6 JIC reducer (J). Finally install hose (G) to reducer (J). Re-connect reel return hose by first installing elbow (which was removed earlier) to tee (K) followed by reel return hose.



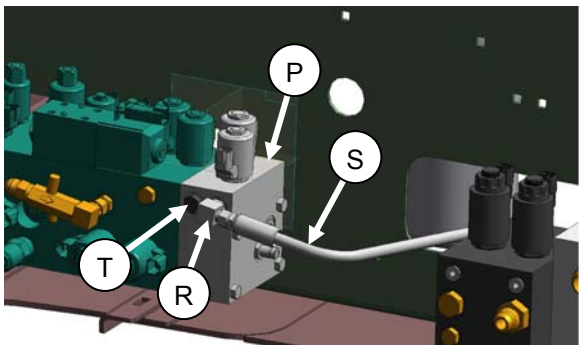
35. On D60 headers with reverser kit, connect case drain hose (G) to “T” port on the header drive block. Disconnect the reel return hose which is connected to port “T” and all the fittings in between. First connect #12 ORB X #10 JIC elbow (H) to port “T”, then install #10 JIC tee (K) to elbow (H) followed by #10 JIC X #6 JIC reducer (J). Finally install hose (G) to reducer (J). Make sure hose (G) is not rubbing against any fittings. Re-connect reel return hose by first installing elbow (which was removed earlier) to tee (K) followed by reel return hose.



36. Remove plugs (L) and (M) from the lift manifold block and retain.



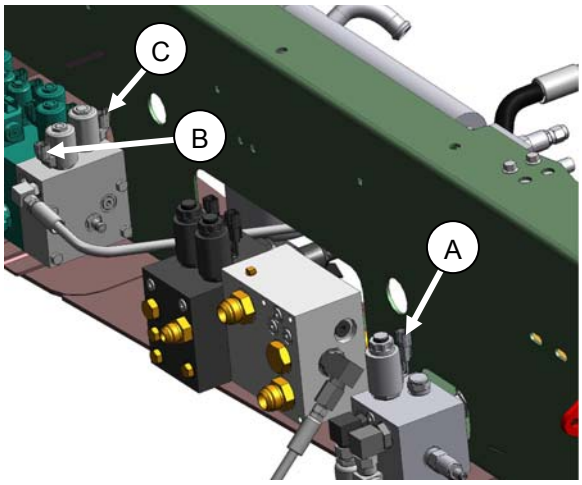
37. Install auxiliary valve block (P) to the lift manifold block. If installing with a D60 header with reel fore/aft, it will already have an auxiliary valve block. The new block (P) gets mounted next to the existing one. Apply grease to o-rings supplied with valve block and install them in the countersunk port holes where the plugs were removed. Assemble smooth side of valve (P) to lift valve with four 3/8" bolts (N) provided. Use the longer bolts if there are two auxiliary valve blocks. Torque bolts to 25 ft-lbs.



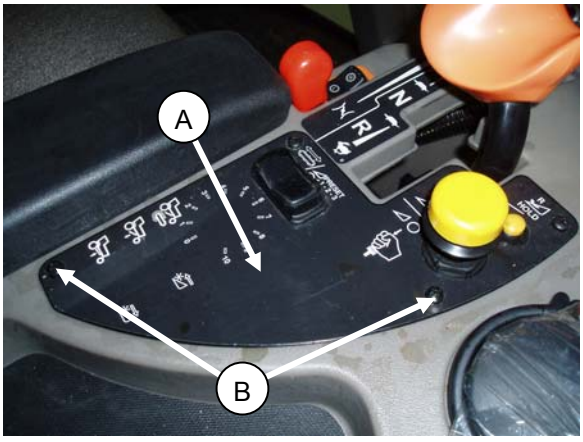
38. Install #6 ORB X #6 JIC elbow (R) in to port "K" on valve block (P). Route ¼" lift cylinder hose (S) through side of tractor frame and connect to elbow (R). Install plug (T) into port "J".

39. Neatly route the hoses by using the zip ties that are included in the kit. Make sure hoses are not rubbing against any moving parts

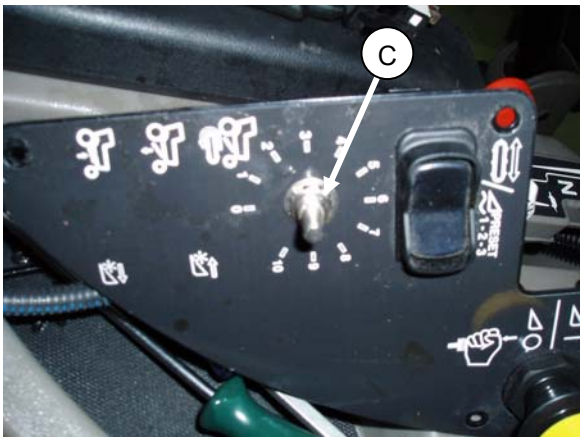
Electrical Installation



40. Connect DWA harness from linkage to plug (A) on the draper drive block. Connect the other plug on DWA harness to P74 on the tractor harness, located near the valve block.
41. Find plug P73 on the tractor harness and connect to plug (B) on the lift block. This is valve "4C". Find plug P72 and connect it to plug (C), this is valve "2C".

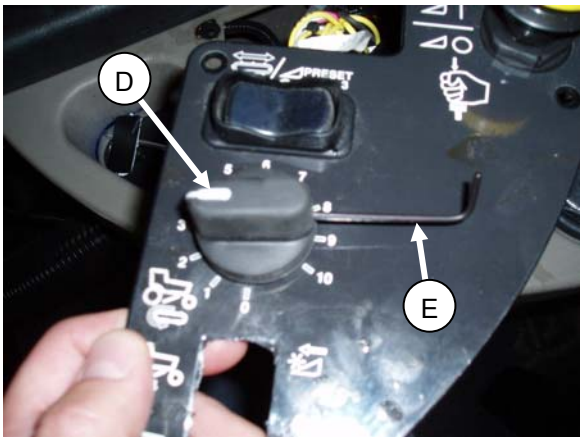


42. Inside tractor cab, remove cover (A) from console by removing 5 screws (B).

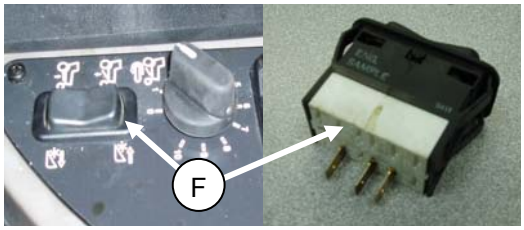


43. Cut hole in decal and install rotary switch (C) as shown. The hole is already present in the mounting plate.

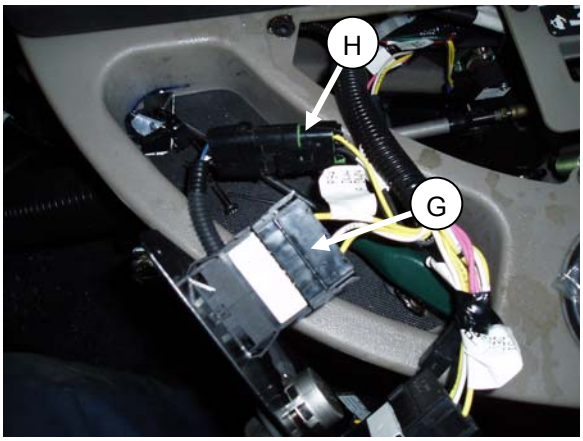
44. Remove knockout in cover (A) for rocker switch. File down the burrs.



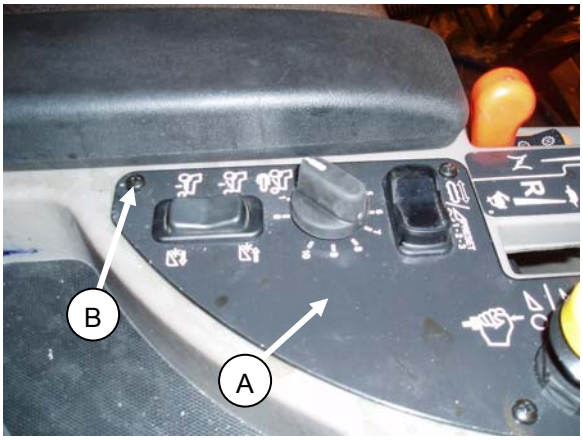
45. Install knob (D) on rotary switch (C). Tighten set screw in knob with Allen wrench (E).



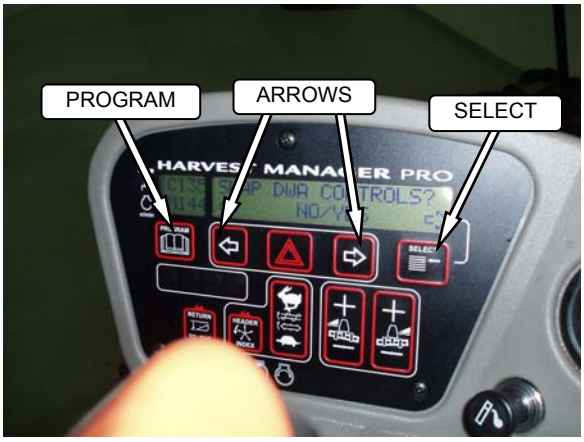
46. Install rocker switch (F) in cover. The side with the prongs should be next to the operator's seat.



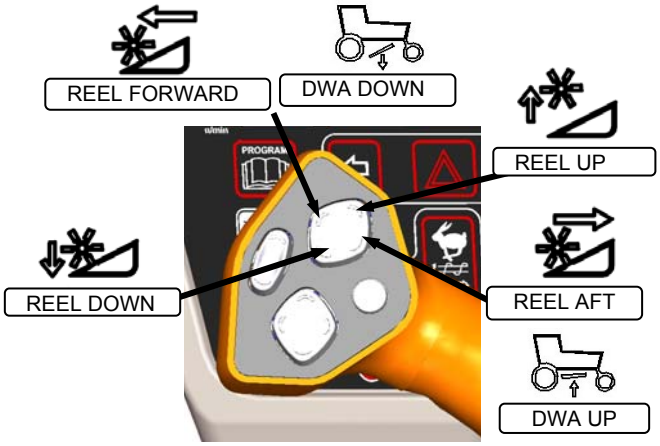
47. Install rocker switch into plug (G) and install rotary switch into plug (H). These plugs come with the tractor and are inside the console.



48. Re-install cover (A) with five screws (B).

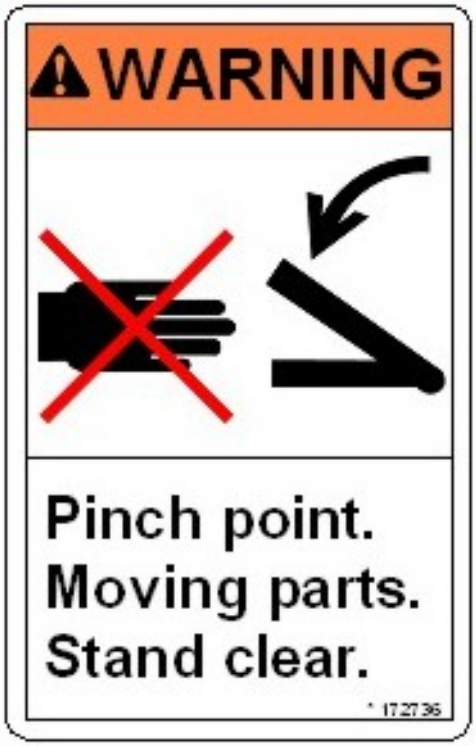


49. The program in the tractor monitor needs to be changed to recognize the DWA.
    a. Turn the key on. Press PROGRAM and SELECT at the same time. Select YES for Tractor Setup. Toggle between YES and NO by pressing the ARROWS.
    b. Scroll through the menu until display reads “DWA INSTALLED?” and select YES.
    c. Display will then read “SWAP DWA CONTROLS?”



    d. The option exists to raise and lower the DWA with either the reel fore/aft switch or the rocker switch (F) installed earlier. If YES is selected, the DWA up/down will be controlled with the reel fore/aft switch and reel fore/aft (D60 headers only) will be controlled with the rocker switch. If NO is selected, the DWA up/down will be controlled with the rocker switch.
    e. The display will then read “EXIT DWA MENU?” Select YES. Press PROGRAM to revert monitor back to operating mode.

SAFETY SIGN LOCATIONS

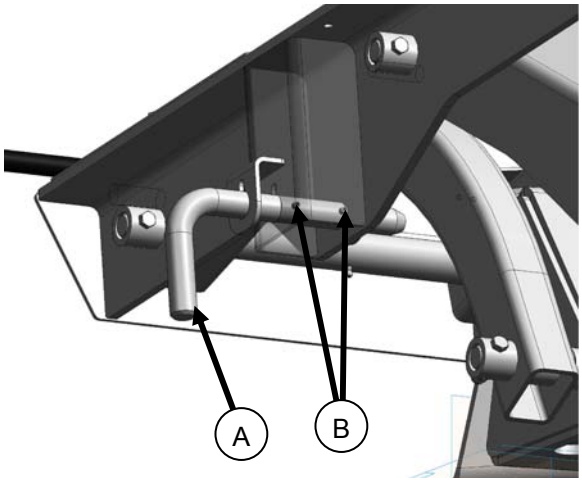


PART NO. 172736 – PINCH POINT
LOCATED ON LINKAGE ARM (BOTH SIDES)

PART NO. 134070 –
HIGH PRESSURE HYDRAULICS
LOCATED ON DECK

CAUTION: To avoid bodily injury:

1. **Review the safety sections of your tractor and header Operator's Manuals.**
2. **Keep all shields in place.**
3. **Engage safety pin (A) when deck is raised fully for transport, service and storage or before going under deck for any reason. To engage safety pin, raise deck, rotate pin and push in until both roll pins (B) are inside channel.**
4. **Keep away from moving draper and rollers.**
5. **Keep clear of the deck while it is being raised or lowered.**



SAFETY PIN

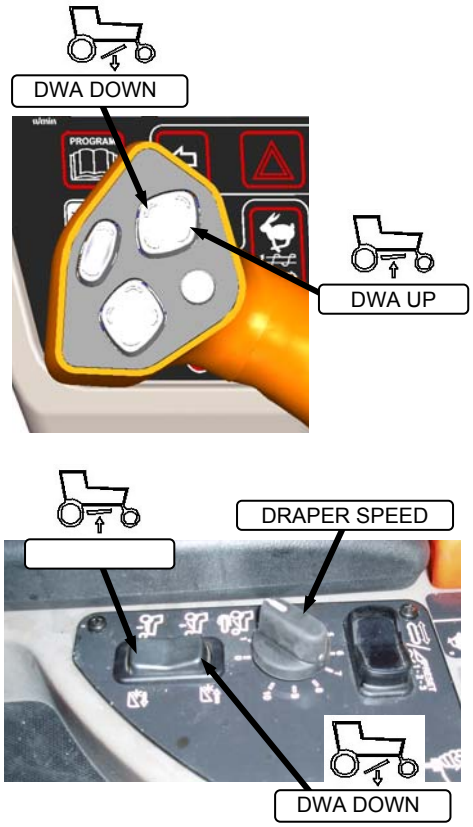
To raise and lower deck:

NOTE: Extra caution should be taken when raising the deck for the first time. The deck rotates as it raises and lowers and the backsheet folds on to the deck. Make sure the deck and backsheet are not interfering with any tractor parts or the forming shield.

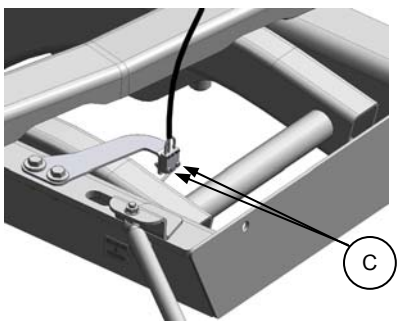
In the setup instructions, if you chose to swap the DWA controls, use the reel fore/aft switch to raise and lower the deck. The deck moves forward when lowering, so switch operation will be the same as when moving the reel forward. The deck moves rearward when raising so switch operation will be the same as when moving the reel rearward.

In the setup instructions, if you chose "NO" to swap the DWA controls, use the rocker switch installed in the console. Press the rocker switch forward portion to lower the DWA and press the rocker switch rearward portion to raise the DWA.

NOTE: Draper shuts off automatically when deck is raised about two thirds of the way up. If deck does not shut off soon enough, resulting in backsheet touching draper before it shuts off, the switch at the linkage needs to be lowered. Lower switch by loosening two screws (C). Do not over tighten the screws or the switch will not work.



DECK LIFT CONTROLS



DRAPER SHUT-OFF SWITCH

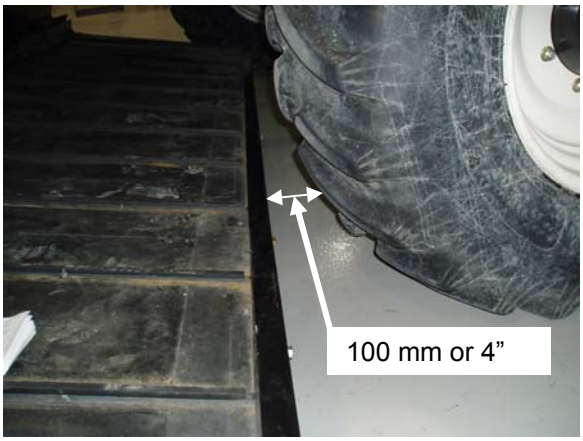
Side delivery draper speed:

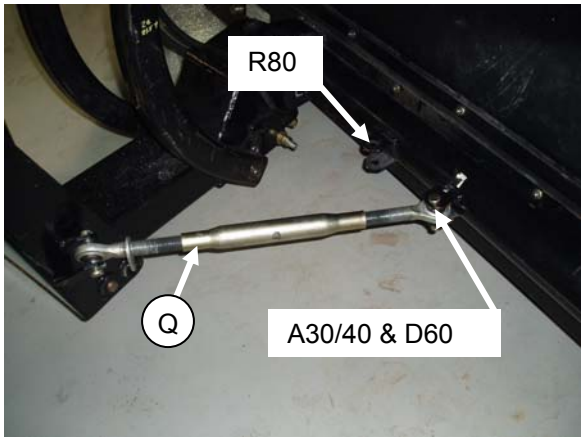
To set the draper speed, turn the draper speed control.

To adjust deck angle:

The deck angle relative to the right hand drive tire is adjustable with turnbuckle (Q). A distance of 100 mm (4") from the deck to the tire is recommended. To adjust the turnbuckle, loosen the locking tab and rotate center tube to desired length then re-lock tab against tube.

NOTE: If setup with an R80 header, the deck will only be in its most forward position when the tractor is running. The lift cylinder is single acting so it is not pressurized in the down stroke when the tractor is shut off. When the tractor is running there is a supply of low pressure oil to move the deck forward.

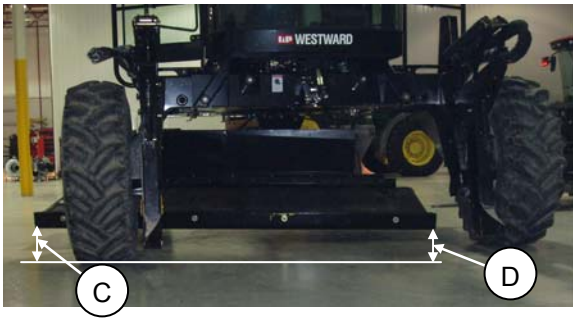




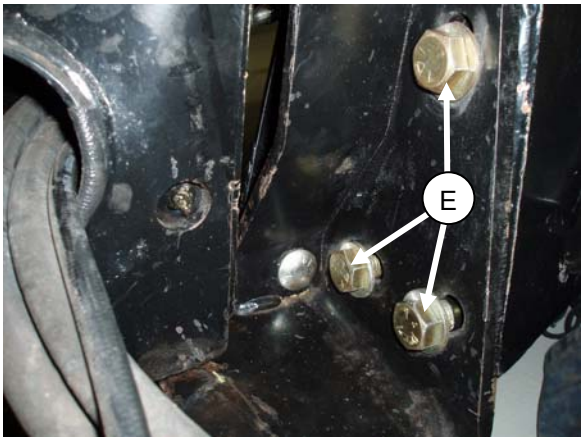
DECK ANGLE TO TIRE

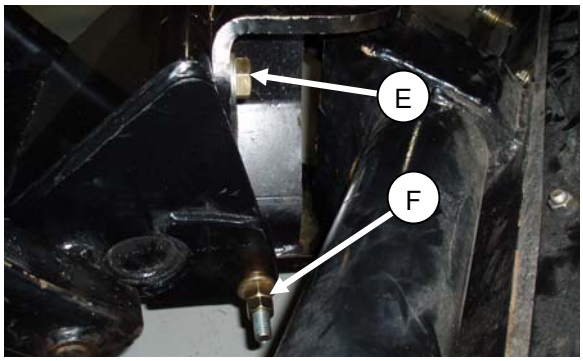
The deck angle relative to the ground should be horizontal or at a slight incline. Distance (C) should be equal to or greater than (D). If used with an R80 header in lighter crop, distance (C) should be equal to (D). If the crop needs to be thrown farther, increase distance (C).

To adjust the deck angle loosen four ¾" bolts (E) and then loosen nut (F). Adjust draw bolt by tightening the second nut (F) if you want to increase distance (C) and loosen nut if you want to decrease distance (C). Once done adjusting, tighten nut (F) and then tighten four bolts (E). The four ¾" bolts must be torqued to 245 ft-lbs.



DECK ANGLE TO GROUND

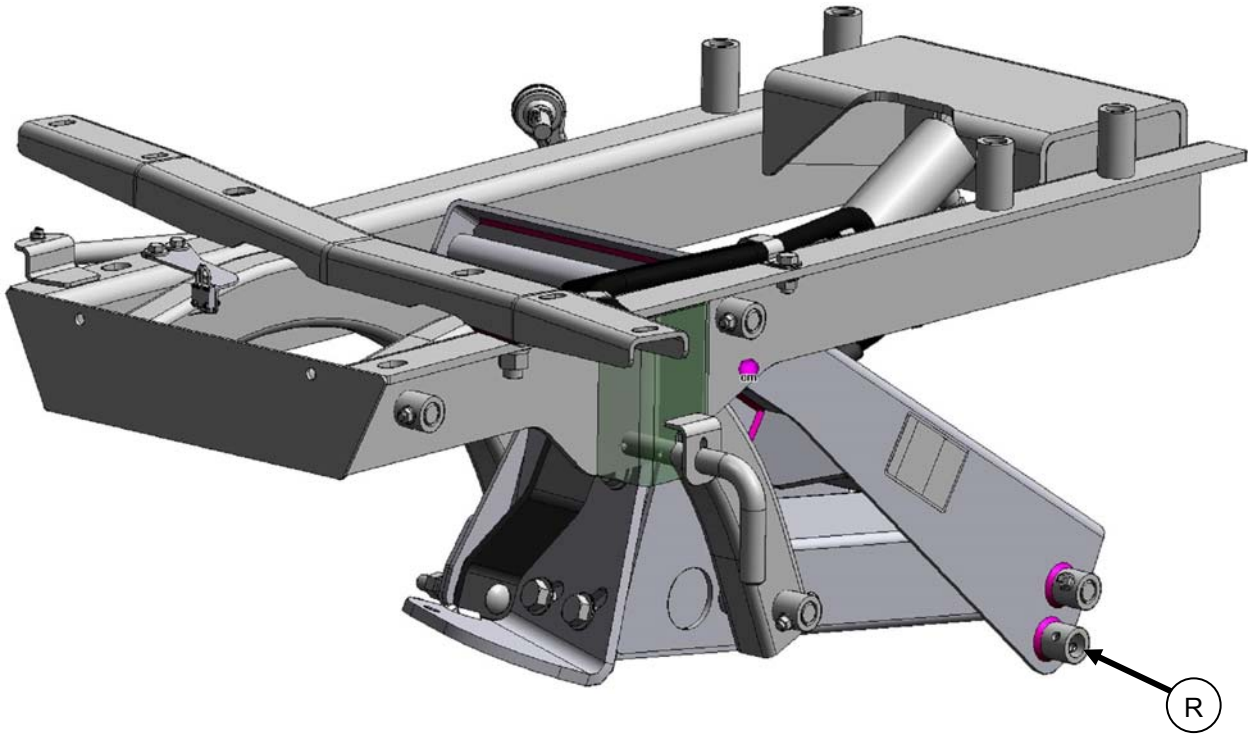




To adjust deck height:

The deck should never touch the ground or excessive wear could occur to some deck components. If the deck is too low to the ground, raise it as follows:

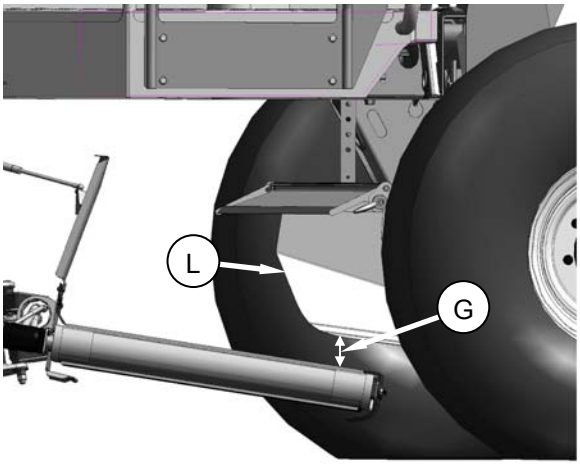
- Lower linkage by fully extending cylinder.
- Move bottom pivot pin to lower position (R).
- This will raise the front of the deck approximately 100 mm (4 inches).



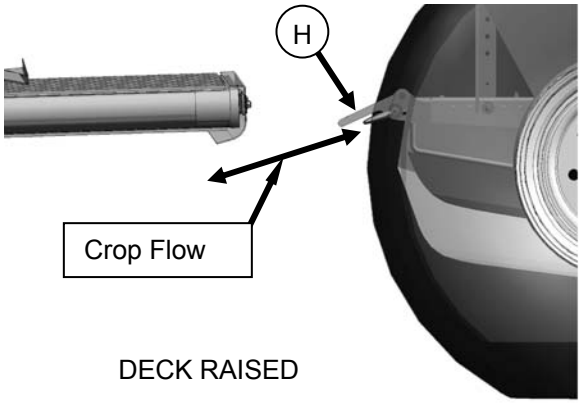
Draper tracking:

Draper tracking needs to be checked when the draper is first run-up otherwise damage to the draper can occur. See Draper Adjustment in the Maintenance/Service section on how to adjust the tracking.

Conditioner Forming Shield Position:



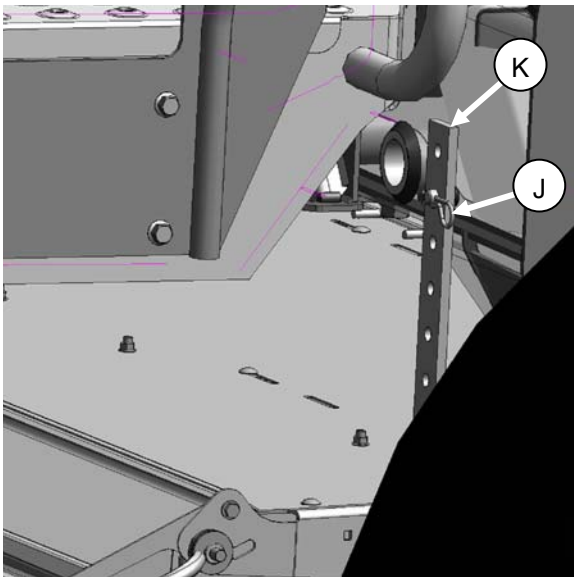
DECK LOWERED



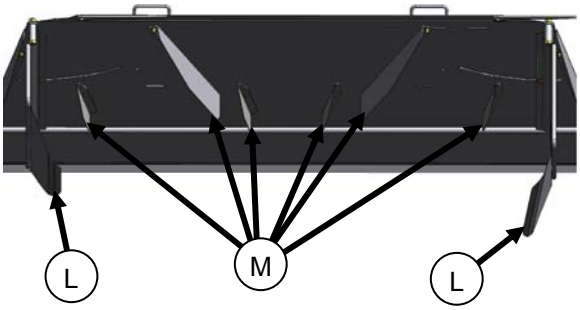
DECK RAISED

Make sure forming shield is high enough to clear the deck when it is lowered (G). Adjust the forming shield height by removing hair pin (J) and moving strap (K) to desired position. The forming shield should be as low as possible without interfering with deck.

The left hand side deflector (L) should be in the widest position to not affect crop flow. If center delivering, the left hand deflector can be moved in to make a narrower windrow. The right hand side deflector should be in the widest position to not affect the crop flow because this is where the deck is the furthest from the conditioner rolls.



Adjust rear deflector baffle (H) so the crop flow does not interfere with the deck when it is fully raised.



Fins (M) underneath the forming shield can affect the crop flow. It is recommended to remove fins, especially with an R80 in light crop.

Conditioner Rolls Position:

The gap between the conditioner rolls needs to be small enough to properly throw the crop on to the double windrow attachment. The gap is dependant on crop type and yield. If the gap is too little for heavy crops, this consumes excessive engine power and is hard on all the components affected. If the gap is too large, the crop will not have enough velocity to reach the side delivery deck. See conditioner operator's manual for adjustment procedure.

Operating Recommendations:

15', 16', 18', 20' Headers: On the first pass, the side delivery system is raised and crop is deposited between tractor wheels. On the return pass, the side delivery system is lowered and crop is deposited outside of the tractor wheels to the right, beside the previously laid windrow. Position of the crop can be adjusted by using the side deflectors on the forming shields when depositing the crop in the center and by varying the draper speed when depositing the crop to the side. The faster the draper speed is set, the farther the crop will be delivered to the side.

25', 30' Headers: The side delivery system is lowered at all times. Crop is deposited outside the tractor wheels and laid beside the previously deposited windrow on return pass. Position of the crop can be adjusted by varying the draper speed when depositing the crop to the side. One can also raise the side delivery system and center deliver all the time.

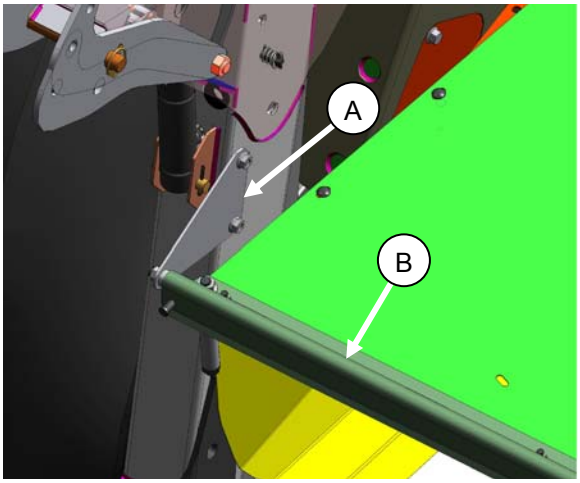
Operating Recommendations with R80 Header:

The conditioner rolls on an R80 header are further ahead than all other headers; therefore delivering **light crop** from the conditioner rolls to the side delivery deck may require special attention:

There are three areas that can affect the crop flow to the deck:

1. Crop flow from the cutterbar to the rolls.
   a. Header cut width must be kept as full as possible on the right hand side. Any less than 75% may have adverse effects on feeding.
   b. Feed plates must be installed for appropriate crop. They are required for forage but not for alfalfa. (See R80 Operator's Manual.)
   c. Higher ground speeds will usually result in better crop flow from the conditioner rolls to the deck. Ground speed should be a minimum of 6 mph (10 km/h) for light crops.
   d. Disc speed must be in recommended range for specific crop/yield. (See R80 operator's manual.)

2. Crop flow from rolls to forming shield.
   a. Rear baffle on the R80 header should be in the upmost position. However it may need to be lower for center windrowing.
   b. If there are fins on the rear baffle, remove them to prevent interference with the crop flow.
   c. Header angle: The steeper the header angle, the higher the arc of the crop trajectory will be. Header angle should be set such that the crop is projected at a maximum arc height without excessive contact with the top forming shield. It may be possible to shoot crop above the forming shield with extreme header angle and rear baffle positions. In rocky conditions where DWA is necessary, a high skid shoe kit or adjustment to gauge rollers may be required to achieve correct stubble height and also maintain crop trajectory.
   d. Header height: affects the header angle. Target should be to have the lift linkage fully down at all times.
   e. The roll gap should be small enough to properly grab the crop and throw it.
   f. The roll speed which is mechanically tied to the disc speed can affect how fast the crop gets projected. This again should be in the recommended range.



3. Forming shield settings:
   a. Make sure forming shield (B) is installed correctly with bracket (A).
   b. Buildup of sticky crop residue on deflector sliding surfaces should be periodically removed.
   c. See "Conditioner Forming Shield Position" on previous page.

Draper Tension Adjustment:

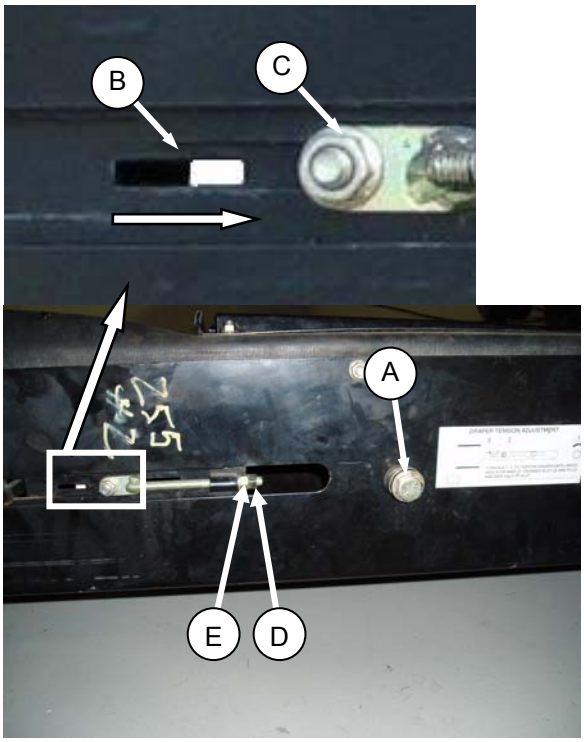
Draper tension should be just enough to prevent slipping and keep draper from sagging.

Set draper tension as follows:

1. Check that draper guide (rubber track on under- side of draper) is properly engaged in groove of drive roller and that idler roller is between the guides.

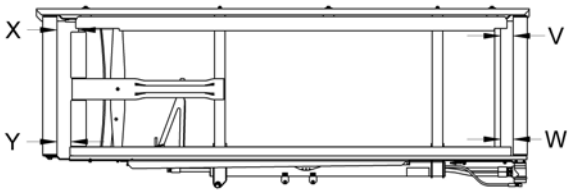
2. Turn bolt (A) clockwise (tighten) and white indicator bar (B) will move to the right in direction of arrow to indicate that draper is tightening. Tighten until bar is about halfway in window.

   IMPORTANT: To avoid premature failure of draper, draper rollers and/or tightener components, do not operate with tension set so that white bar is not visible.



Draper Tracking Adjustment:

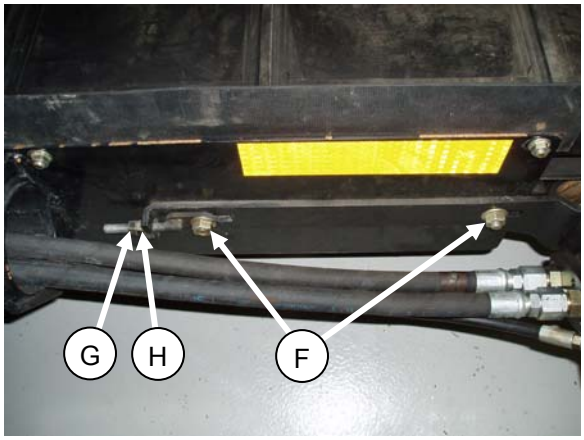
The draper deck has one fixed roller and one spring-loaded roller. The spring loaded roller is located at the same end of the deck as the draper tensioner. Both rollers can be aligned by adjuster rods.



If the draper is tracking incorrectly, make the following adjustments to the rollers:

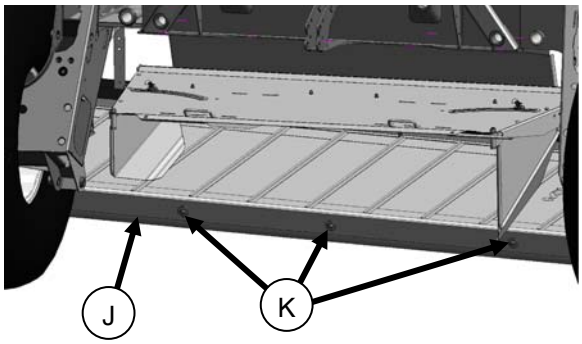
TRACKING	AT LOCATION	ADJUSTMENT	METHOD
Rearward	Drive Roller	INCREASE 'W'	Tighten Nut 'H'
Forward		DECREASE 'W'	Loosen Nut 'H'
Rearward	Idler Roller	INCREASE 'Y'	Tighten Nut 'E'
Forward		DECREASE 'Y'	Loosen Nut 'E'

a) To adjust the idler roller: Loosen nut (C) and then loosen nut (D). Adjust nut (E) according to chart and then tighten nuts (D) and (C).
b) To adjust the drive roller: Loosen two nuts (F) and then loosen nut (G). Adjust nut (H) according to chart and then tighten nuts (G) and (F).
c) After adjusting the alignment adjust the tension of the draper.



DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, stop engine, remove key and engage safety pin before going under machine for any reason.

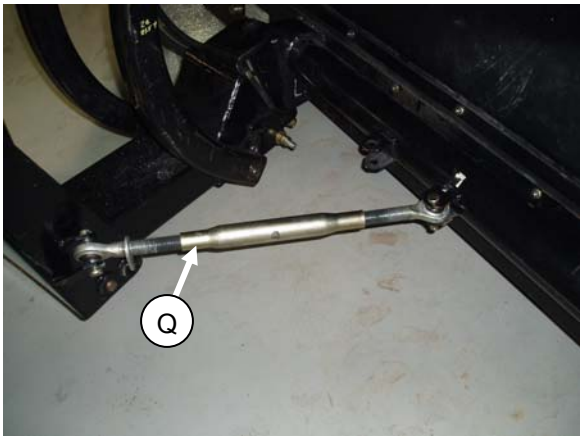


Replacing Draper:

1. Raise deck partly up to increase space between deck and right hand drive tire. First remove front skid (J) by removing four nuts (K).

2. Loosen draper tension and push idler roller inwards as far as possible.

3. Disconnect turnbuckle (Q) and allow deck to rotate rearwards to increase space between deck and tire.



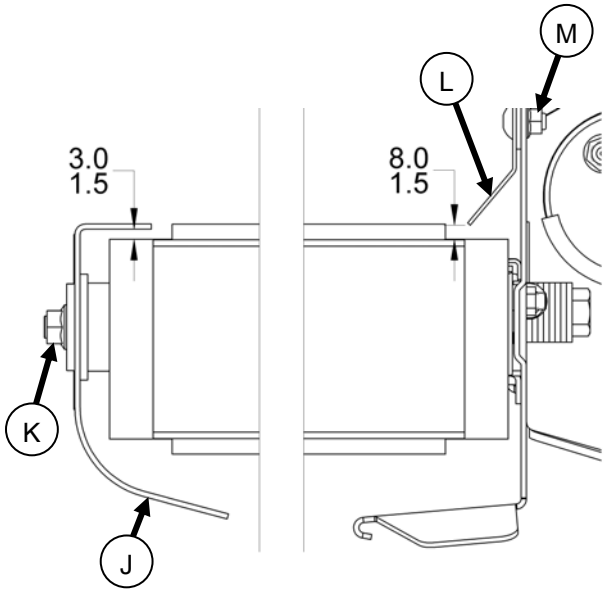
4. Pull off old draper and slide on new one. The draper is bi-directional so the orientation of the draper does not matter. Tension the draper.

5. Re-install turnbuckle (Q) and front skid (J). Adjust front skid to achieve a 1.5 to 3.0 mm (1/16 - 1/8") gap to draper.

6. Run the new draper and check alignment, adjust alignment if necessary. Re-check draper tension after it has run for a few hours.

Front Skid Adjustment:

Adjust front skid (J) so it is just above the draper. To adjust, loosen four nuts (K) on front of skid, position skid height and retighten nuts. The skid height should be 1.5 to 3.0 mm (1/16 - 1/8") above the draper. The weight of the skid should not be on the draper; otherwise it will cause excessive heat and melt the draper. If gap is excessive, crop can enter inside draper.

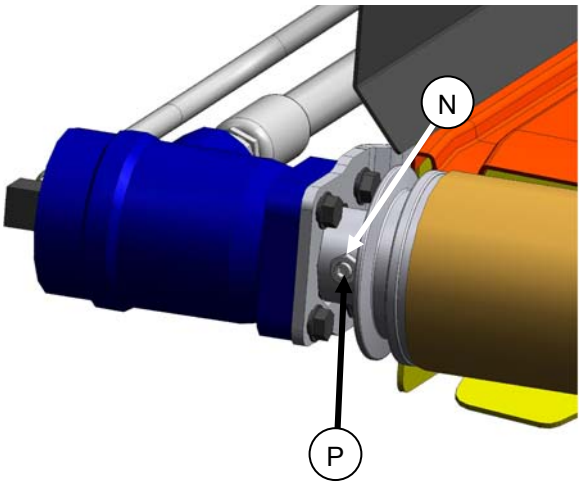


Rear Deflector Adjustment:

The rear deflector (L) prevents crop from entering inside draper. To adjust, loosen all nuts (M) along the length of the deck and raise or lower accordingly. The height should be 1.5 to 8 mm (1/16 – 5/16") above the draper.

Draper Roller Maintenance:

The draper rollers have non-greaseable bearings. The external seal should be checked every 200 hours or more frequently in sandy conditions to obtain the maximum bearing life. Remove front skid to inspect seals.

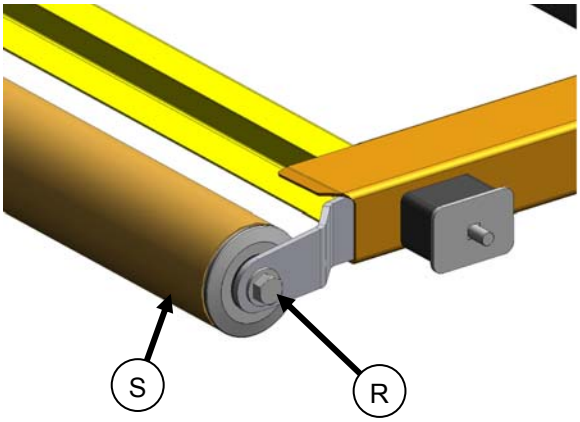


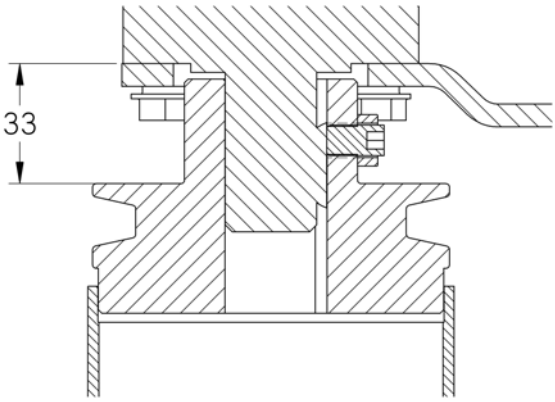
DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, stop engine, remove key and engage safety pin before going under machine for any reason.

Drive Roller:

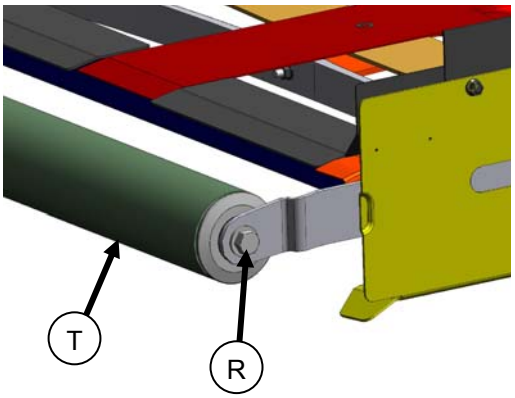
1. Raise deck and engage safety pin.
2. Remove front skid, loosen and remove draper. See page 21 for instructions.
3. Loosen two jam nuts (N) and set screws (P).
4. At the front of the drive roller (S) remove bolt and washer (R). The arm can be pulled out of the deck.
5. Pull drive roller off of motor shaft.
6. Re-install drive roller in reverse order.
7. Apply grease to motor shaft.
8. Slide drive roller on to motor shaft. Make sure it is fully engaged. The drive roller should be 33 mm (1.3”) from the face of the motor.
9. Install two set screws (P) with jam nuts. Torque set screws to 20 ft-lbs (27 N-m).
10. Torque bolt (R) to 70 ft-lbs (95 N-m).





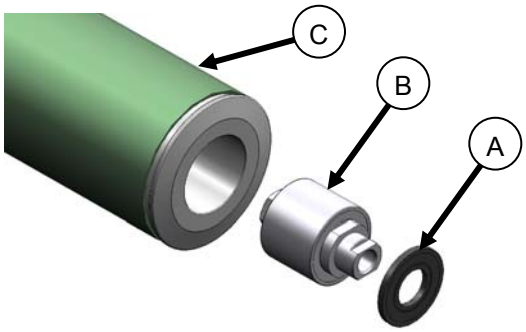
Idler Roller:

1. Raise deck and engage safety pin.
2. Remove front skid. Loosen draper. Draper does not need to be removed but removal will ease roller disassembly.
3. Remove idler roller (T) by removing bolt and washer (R) at each end of roller.
4. Re-install idler roller in reverse order.
5. Torque bolts (R) to 70 ft-lbs (95 N-m).

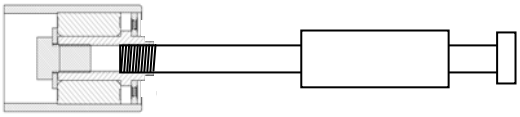


Draper Roller Bearing/Seal Replacement:

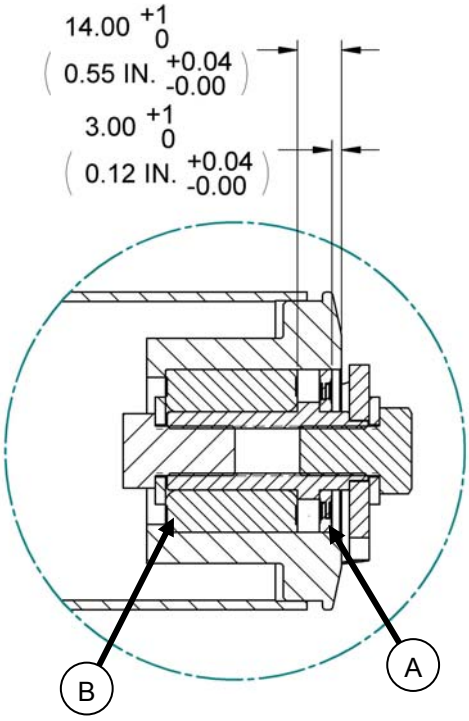
1. Remove roller assembly. See previous section for instructions.



2. Remove bearing assembly (B) and seal (A) from roller tube (C) as follows:



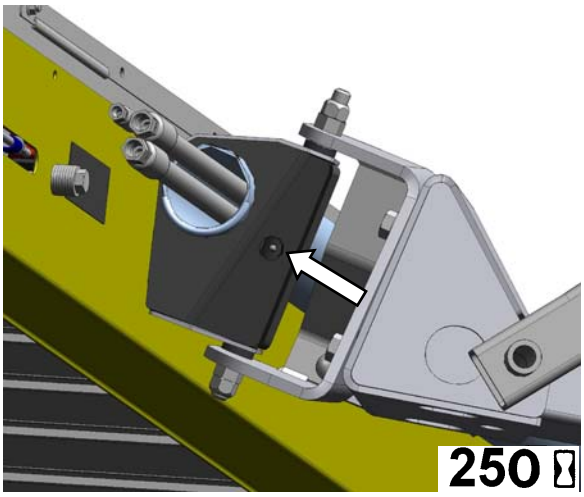
   a. Attach a slide hammer to threaded shaft.
   b. Tap out the bearing assembly.
3. Clean inside of roller tube (C). Check tube for wear or damage. Replace if necessary.

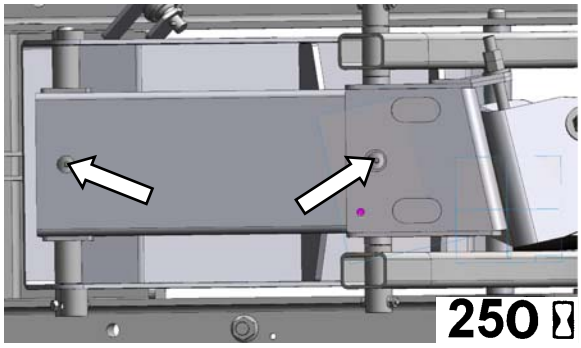


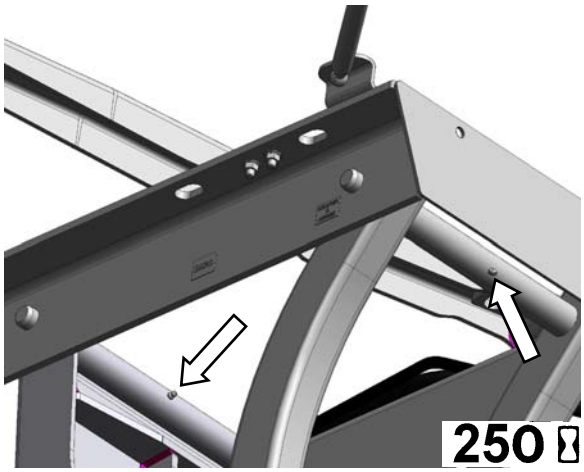
4. Install bearing assembly (B) into roller by pushing on outer race of bearing. The bearing is fully positioned when the 14 mm (0.55”) dimension is achieved.
5. Apply grease in front of bearing.
6. Install seal into roller by pushing on the outer and inner race of the seal. A flat washer (1.0” ID X 2.0” OD) works well to push against the seal. The seal is fully positioned when the 3 mm (0.12”) dimension is achieved.
7. Make sure bearing and seal turn freely. Re-install roller assembly in to deck.

Lubrication:

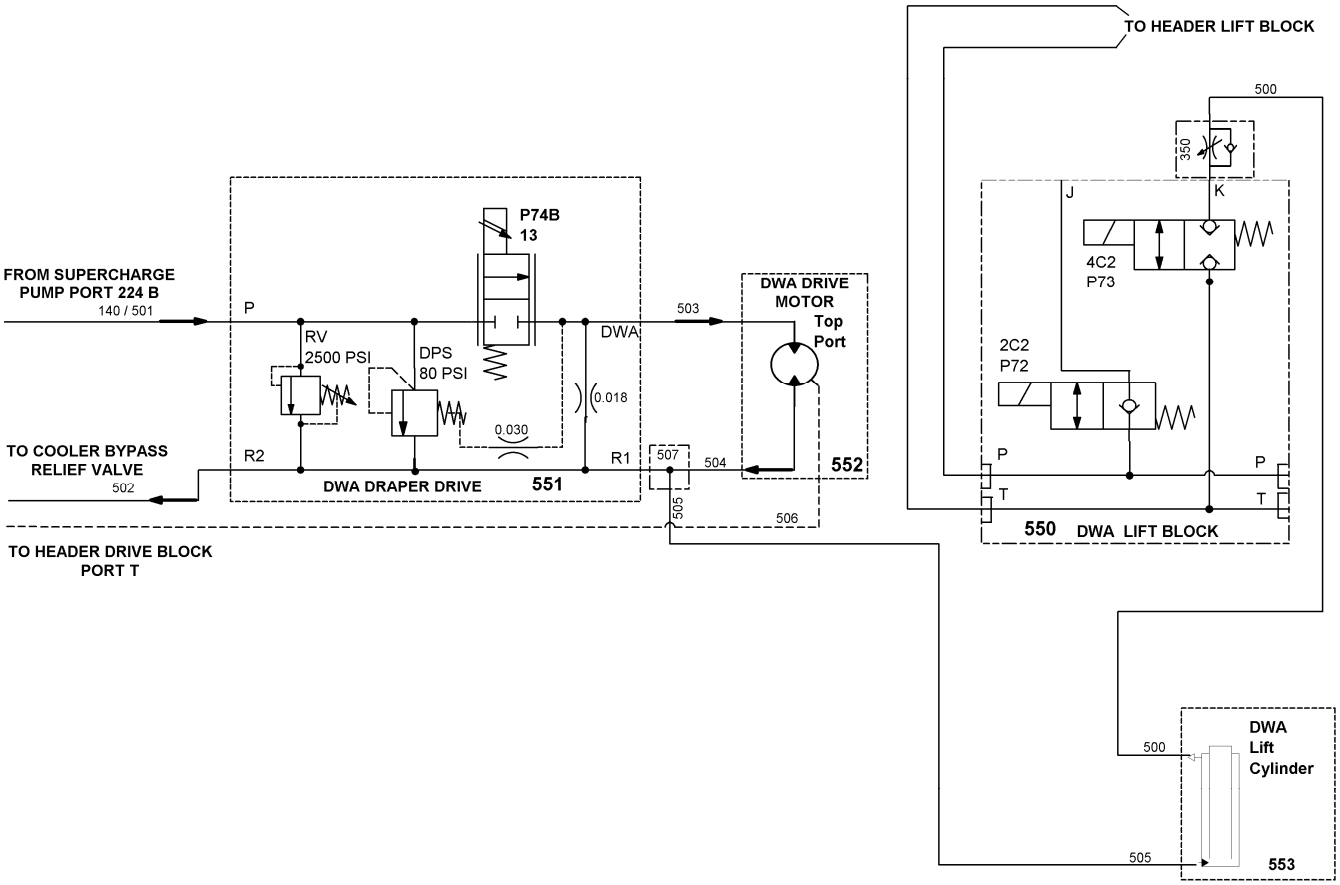
There are 5 pivots which require greasing every 250 hours and/or after end of season.







Hydraulic Schematic



REPAIR PARTS

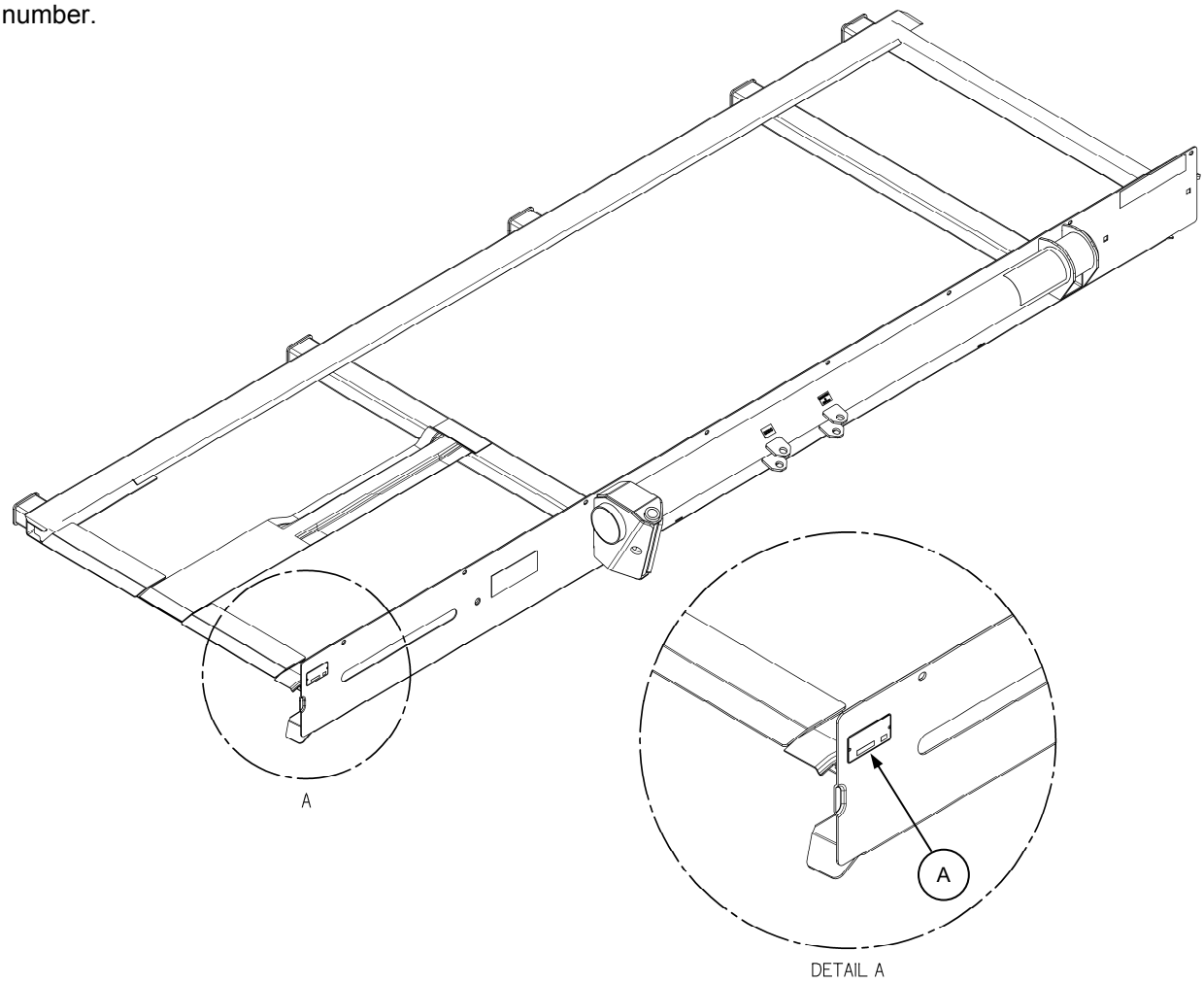
TABLE OF CONTENTS

Serial Number
Record the serial number in the space provided.

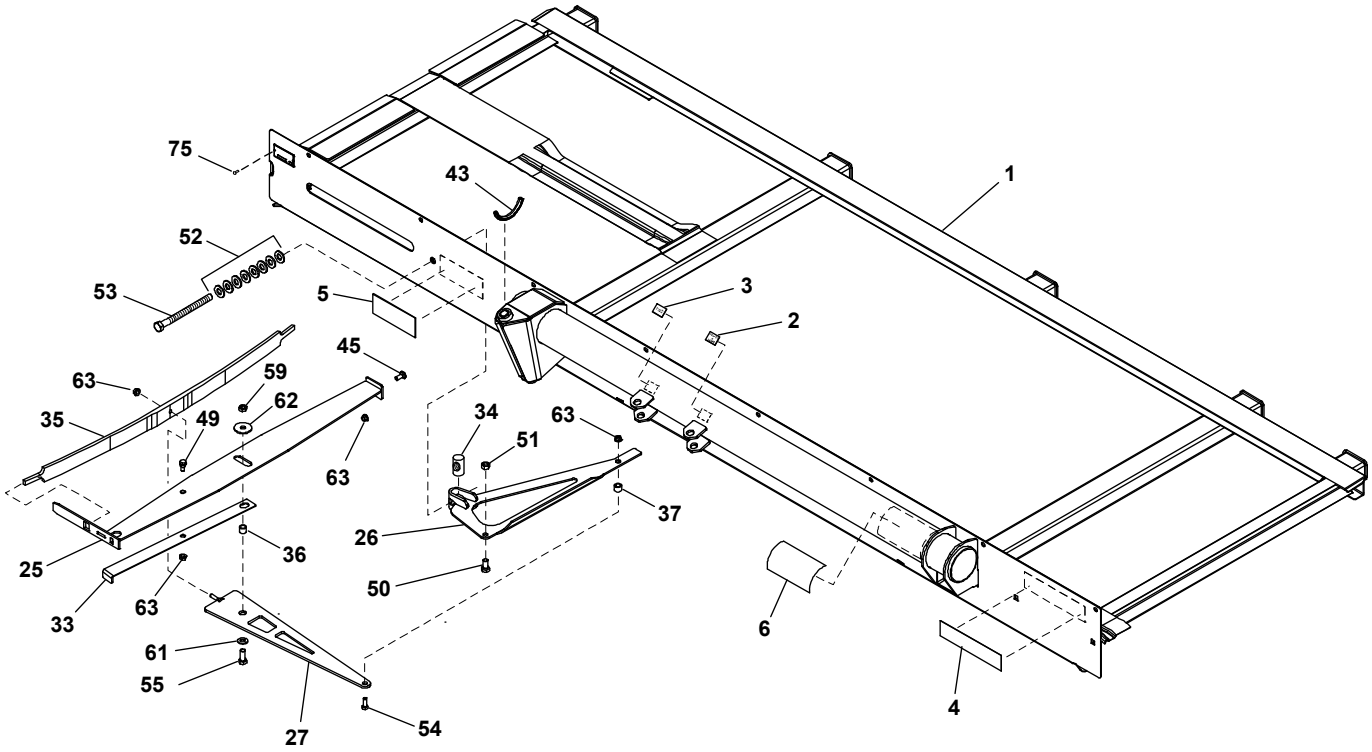
_____

Plate is located on deck at (A).

NOTE: When ordering parts and service, be sure to give your dealer the complete and proper serial number.



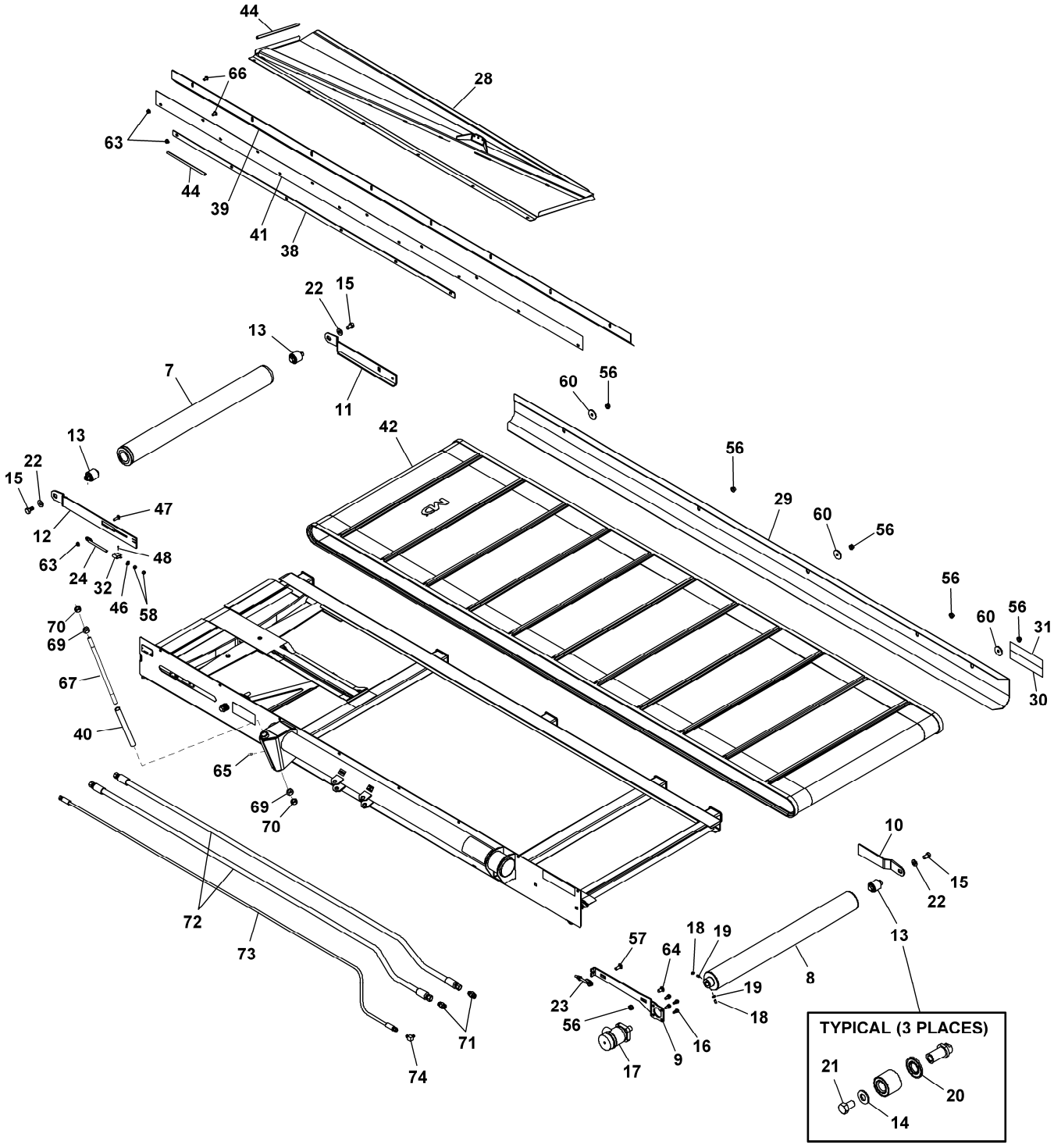
DECK, DRAPER & ROLLERS
(Illustration 1)



DECK, DRAPER & ROLLERS

REF	PART NUMBER	DESCRIPTION	QTY	SERIAL NUMBER
1	172730	DECK – complete with decals	1	
2	172701	DECAL – draper/auger position	1	
3	172700	DECAL – disc position	1	
4	115146	REFLECTOR – amber	1	
5	165281	DECAL – draper tension	1	
6	134070	DECAL – warning, hydraulic	1	
25	120449	MEMBER – left hand stabilizer weldment	1	
26	120451	BELL CRANK WELDMENT – left hand	1	
27	120462	MEMBER – compression weldment	1	
33	145428	INDICATOR	1	
34	145361	NUT – special	1	
35	145548	SPRING – leaf (tensioner)	1	
36	132531	SPACER	1	
37	132532	SPACER	1	
43	109791	MOULDING	1	
45	19965	BOLT – round head, square neck, 3/8 NC x 1.0 GR 5 ZP	1	
49	172259	BOLT – shoulder, 3/8-16 UNC	1	
50	30470	BOLT – hex head, 1/2 NF x 1.0 GR 5 ZP	1	
51	7663	NUT – hex, lock, 1/2-20 UNF nylon patch ZP	1	
52	30441	WASHER – hardened	8	
53	50190	BOLT – hex head (thread minimum) 5/8 NC x 7.5 LG GR 5 ZP	1	
54	20077	BOLT – hex head, 3/8 NC x 1.0 LG GR 5 ZP	1	
55	21491	BOLT – hex head, 1/2 NC x 1.25 LG GR 5 ZP	1	
59	137727	NUT – hex jam, distorted thread, 1/2-13 UNC GR 5 ZP	1	
61	18599	WASHER – SAE flat, 17/32 ID x 1 1/16 inch OD ZP	1	
62	42592	WASHER – flat	1	
63	30228	NUT – flange, distorted thread, smooth face, 3/8-16 UNC	4	
75	14338	RIVET – blind 1/8 x 1/8	2	

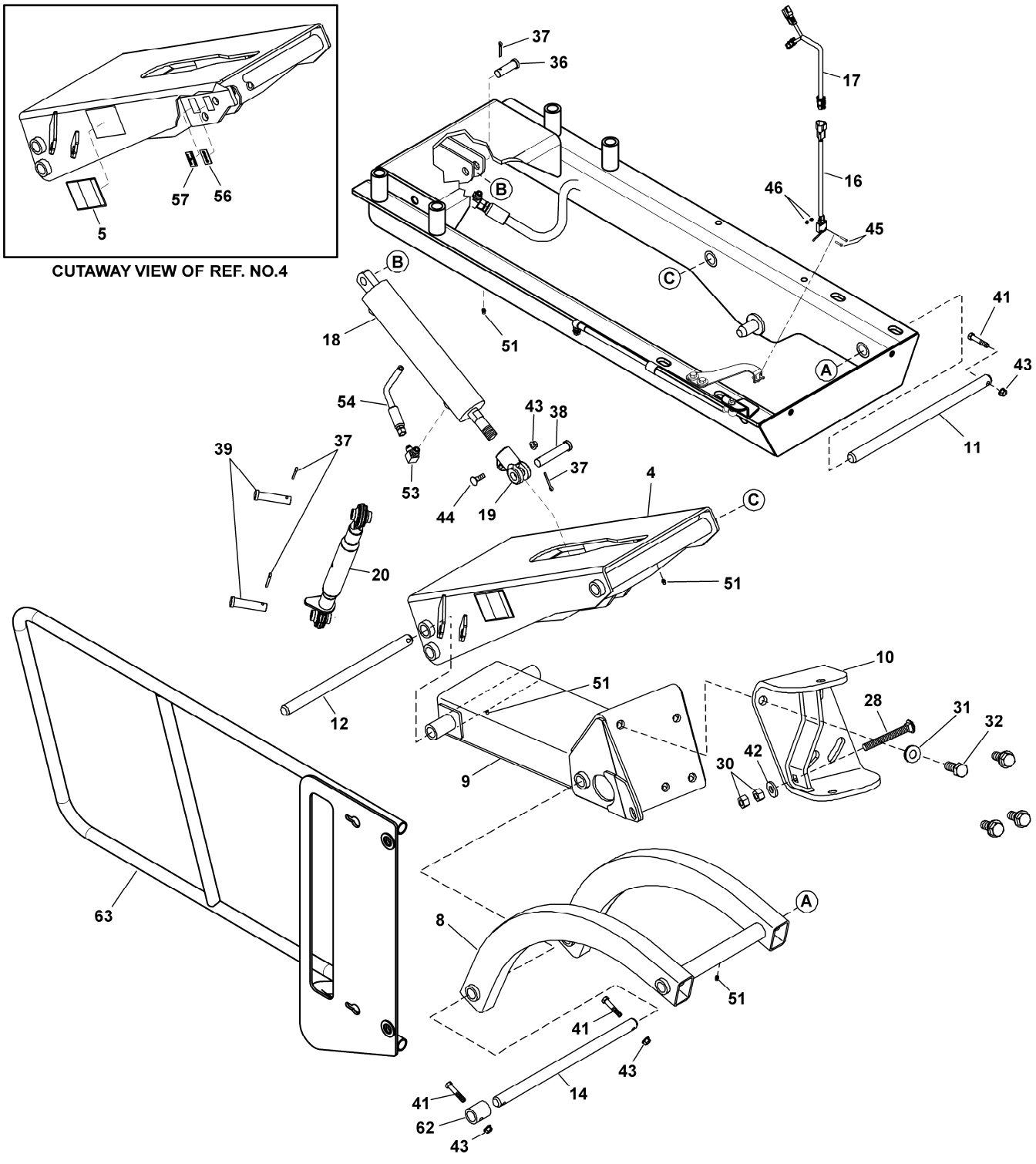
DECK, DRAPER & ROLLERS
(Illustration 2)



DECK, DRAPER & ROLLERS

REF	PART NUMBER	DESCRIPTION	QTY	SERIAL NUMBER
7	144833	ROLLER – idler weldment	1	
8	144494	ROLLER – drive weldment	1	
9	144501	ARM – support	1	
10	144499	ARM – roller support	1	
11	176000	ARM – support weldment	1	
12	144837	ARM – support rear	1	
13	165735	PIN ASSEMBLY – draper roller	3	
14	30441	WASHER – hardened	3	
15	145249	BOLT – hex head, 5/8 NF x 1.0 LG GR 5 ZP	3	
16	172259	BOLT – shoulder, 3/8-16 UNC	4	
17	144832	MOTOR – hydraulic M & S 1.52 CI	1	
18	18709	SETSCREW – hex head, socket cup pt 3/8 NC x 5/8 LG	2	
19	18664	NUT – hex jam, 3/8-16 UNC GR 5 ZP	2	
20	120845	SEAL – Nilos LSTO steel disk	3	
21	145249	BOLT – hex head, 5/8 NF x 1.0 LG GR 5 ZP	3	
22	30441	WASHER – hardened	3	
23	145593	ROD – adjuster weldment	1	
24	145345	ROD – adjuster weldment	1	
28	144602	PANEL – rear weldment	1	
29	172747	SKID – complete with reflectors	1	
30	115145	REFLECTOR – fluorescent red-orange	1	
31	115147	REFLECTOR – red	1	
32	145357	BRACKET – idler arm	1	
38	144652	BAR – stiffener	1	
39	144851	DEFLECTOR – seal	1	
40	144558	BUSHING – steel	1	
41	144597	SEAL – backsheet	1	
42	165304	DRAPER – endless, DWA	1	
44	37687	MOULDING	2	
46	18598	WASHER – SAE flat, 13/32 ID x 13/16 inch OD ZP	2	
47	19966	BOLT – round head, square neck, 3/8 NC x 1.25 LG GR 5 ZP	1	
48	18604	PIN – cotter 3/32 dia. x 3/4 ZP	1	
56	50186	NUT – flange, lock, smooth face, dist thd, 1/2-13 UNC ... GR 5	7	
57	21471	BOLT – round head, square neck, 1/2 NC x 1.25 GR 5 ZP	1	
58	18590	NUT – hex, 3/8-16 UNC GR 5 ZP	4	
60	11695	WASHER – flat	3	
63	30228	NUT – flange, distorted thread, smooth face, 3/8-16 UNC	15	
64	21066	BOLT – round head, square neck, 1/2 NC x 1 GR 5 ZP	1	
65	18671	FITTING – lube 1/4-28 UNF	1	
66	135157	SCREW – machine	14	
67	**176063**	**SHAFT - threaded**	1	**See Note 1**
69	18593	NUT – hex, 3/4-10 UNC GR 5 ZP	2	
70	18689	NUT – hex, lock, distorted thread, 3/4-10 UNC	2	
71	30695	FITTING – hydraulic connector	2	
72	132867	HOSE – hydraulic	2	
73	120572	HOSE – hydraulic	1	
74	50104	FITTING – elbow 90° hydraulic	1	
	NOTES:			
	1.	RE ITEM 67: Prior production units used a hex head bolt in this location. When replacing bolt with newer design threaded shaft, also order one each of nuts, items 69 and 70 for head end.		

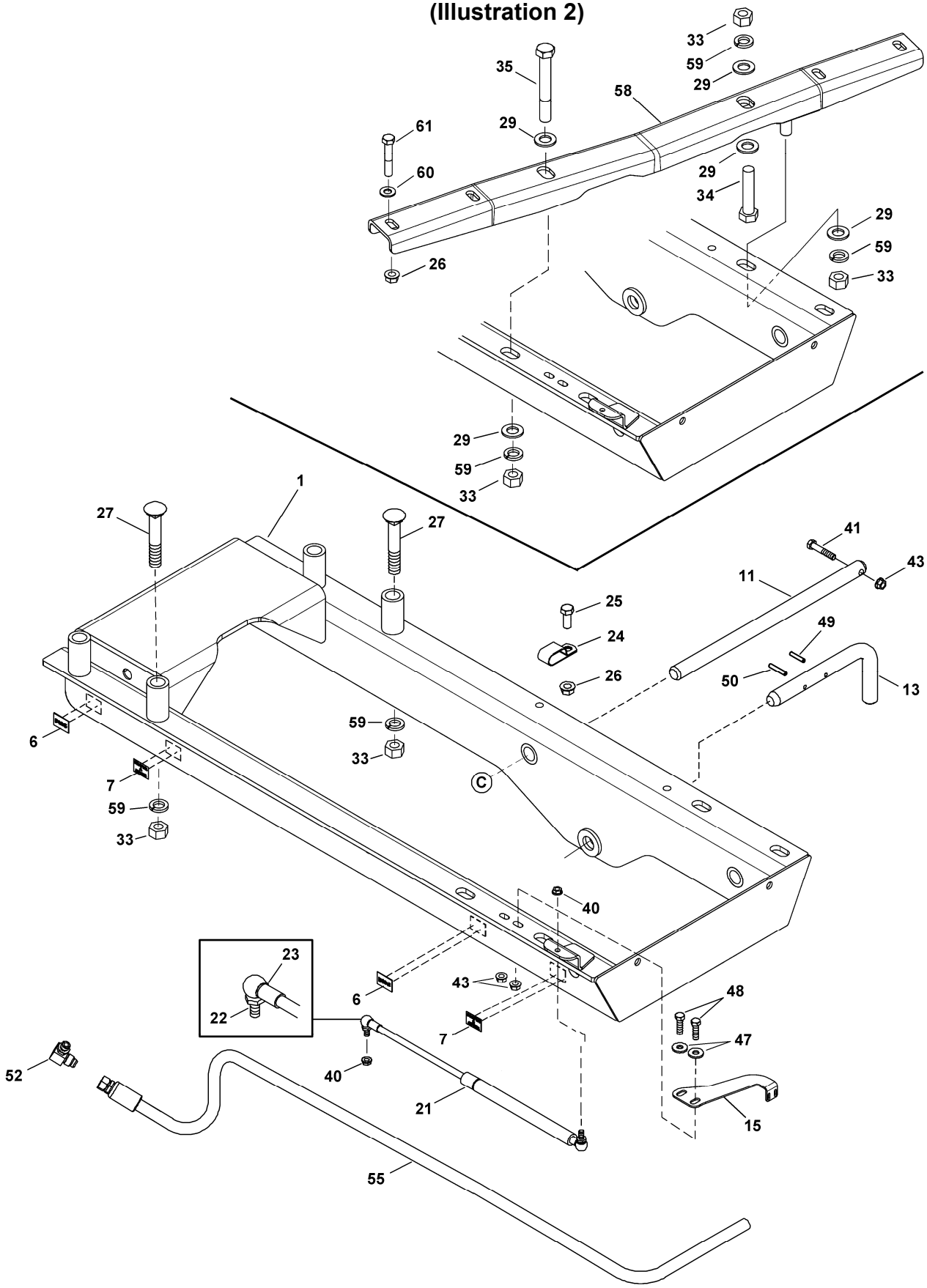
DECK SUPPORTS & LINKAGE
(Illustration 1)



DECK SUPPORTS & LINKAGE

REF	PART NUMBER	DESCRIPTION	QTY	SERIAL NUMBER
4	172746	ARM – decal assembly	1	
5	172736	DECAL – warning DWA linkage	2	
8	144592	ARM – front weldment	1	
9	144593	ARM – bottom weldment	1	
10	144594	CLEVIS – weldment	1	
11	172910	SHAFT	1	
12	176018	SHAFT	1	
14	176023	SHAFT	1	
16	109699	SWITCH – snap action	1	
17	110845	HARNESS – DWA	1	
18	144826	CYLINDER – hydraulic	1	
	176031	**SEAL KIT – for cylinder**		
19	172664	CLEVIS	1	
20	144996	JOINT ASSEMBLY	1	
28	30816	BOLT – round head, square neck, 5/8 NC x 5 TFL GR 5 ZP	1	
30	18592	NUT – hex, 5/8-11 UNC GR 5 ZP	2	
31	176009	WASHER – Nordlock, 3/4" SP	4	
32	30512	BOLT – hex head, 3/4 NC x 2.0 LG GR 5 ZP	4	
36	18626	PIN – clevis	1	
37	18648	PIN – cotter, 3/16 dia. x 1.25 ZP	4	
38	20312	PIN – clevis	1	
39	18627	PIN – clevis	2	
41	21354	BOLT – hex head, 3/8 NC x 2.0 LG GR 5 ZP	4	
42	22072	WASHER – flat	1	
43	30228	NUT – flange, distorted thread, smooth face, 3/8-16 UNC	5	
44	**19966**	**BOLT – round head, sq. neck, 3/8 NC x 1.25 LG GR 5 ZP**	**1**	
45	135158	SCREW – pan head, #6-32 x 3/4 LG	2	
46	135159	NUT – Nyloc	2	
51	18671	FITTING – lube, 1/4-28 UNF	4	
53	30282	FITTING – elbow 90° hydraulic	1	
54	144805	HOSE – hydraulic	1	
56	172700	DECAL – disc position	2	
57	172701	DECAL – draper/auger position	2	
62	172903	TUBE	1	
63	144870	RAIL WELDMENT	1	

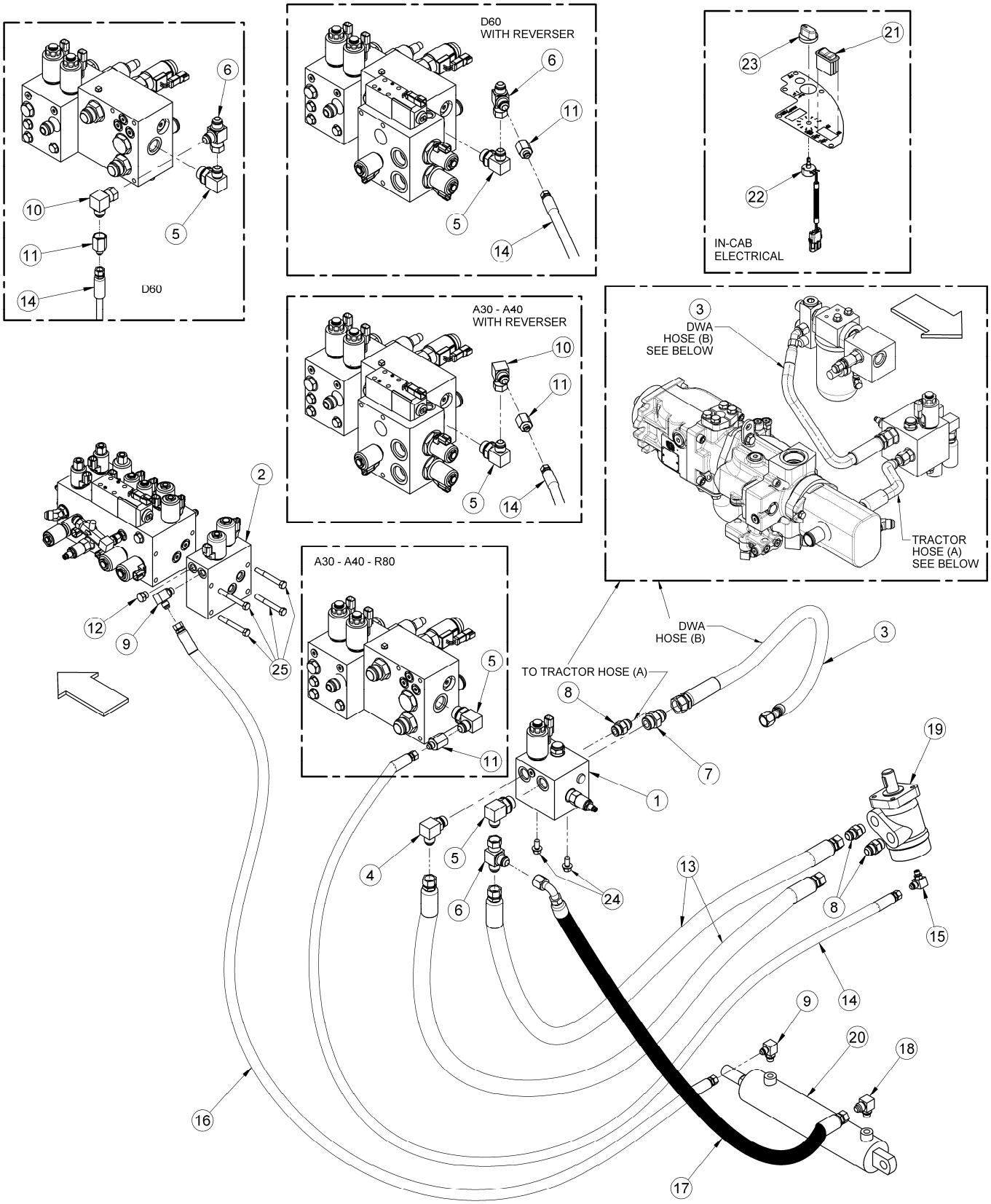
DECK SUPPORTS & LINKAGE
(Illustration 2)



DECK SUPPORTS & LINKAGE

REF	PART NUMBER	DESCRIPTION	QTY	SERIAL NUMBER
1	144590	SUPPORT WELDMENT KIT, consists of 176062, Items 15, 58 & hardware.	1	-185859
	176062	**SUPPORT WELDMENT .....**	**1**	**185860**
6	172700	DECAL – disc position.....	2	
7	172701	DECAL – draper/auger position	2	
11	172910	SHAFT.....	1	
13	176016	PIN – L.....	1	
15	144853	SUPPORT	1	
21	176026	CYLINDER – gas spring.....	1	
22	112217	STUD – ball	2	
23	112218	CLIP – ball stud	2	
24	103738	CLAMP – PVC insulated 13/16" tube size	2	
25	21491	BOLT – hex head, 1/2 NC x 1.25 LG GR 5 ZP	2	
26	50186	NUT – flange lock, smooth face, dist. thd, 1/2-13 UNC GR 5....	6	
27	102266	BOLT – RHSSN, 3/4 NC X 4.5 LG GR 5 ZP	2	
29	18601	WASHER – SAE flat, 13/16 ID x 1.5 inch OD ZP	5	
33	**18593**	**NUT – hex, 3/4-10 UNC GR 5 ZP .....**	**5**	
34	30896	BOLT – hex head, 3/4-10 UNC x 3.50 LG.....	1	
35	**30549**	**BOLT – hex head, 3/4 NC x 5.5 LG GR 5 ZP .....**	**1**	
40	30280	NUT – flange, side lock, smooth face, 5/16 NC GR 5 ZP	2	
41	21354	BOLT – hex head, 3/8 NC x 2.0 LG GR 5 ZP	1	
43	30228	NUT – flange, distorted thread, smooth face, 3/8-16 UNC	3	
47	20535	WASHER – flat	2	
48	21264	BOLT – hex head, 3/8 NC x 1.25 LG GR 5 ZP	2	
49	16266	PIN – spring, 1/4 dia. x 1.25 LG	1	
50	2147	PIN – spring, 1/4 dia. x 1.5 LG	1	
52	21805	FITTING – elbow hydraulic.....	1	
55	144806	HOSE – hydraulic	1	
58	**176060**	**CHANNEL WELDMENT .....**	**1**	
59	**18640**	**WASHER – lock, 3/4 .....**	**5**	
60	**18599**	**WASHER – flat, 17/32 inch I.D. .....**	**4**	
61	**21880**	**BOLT – hex head, 1/2 NC x 2.75 long, Gr 5, ZP .....**	**4**	

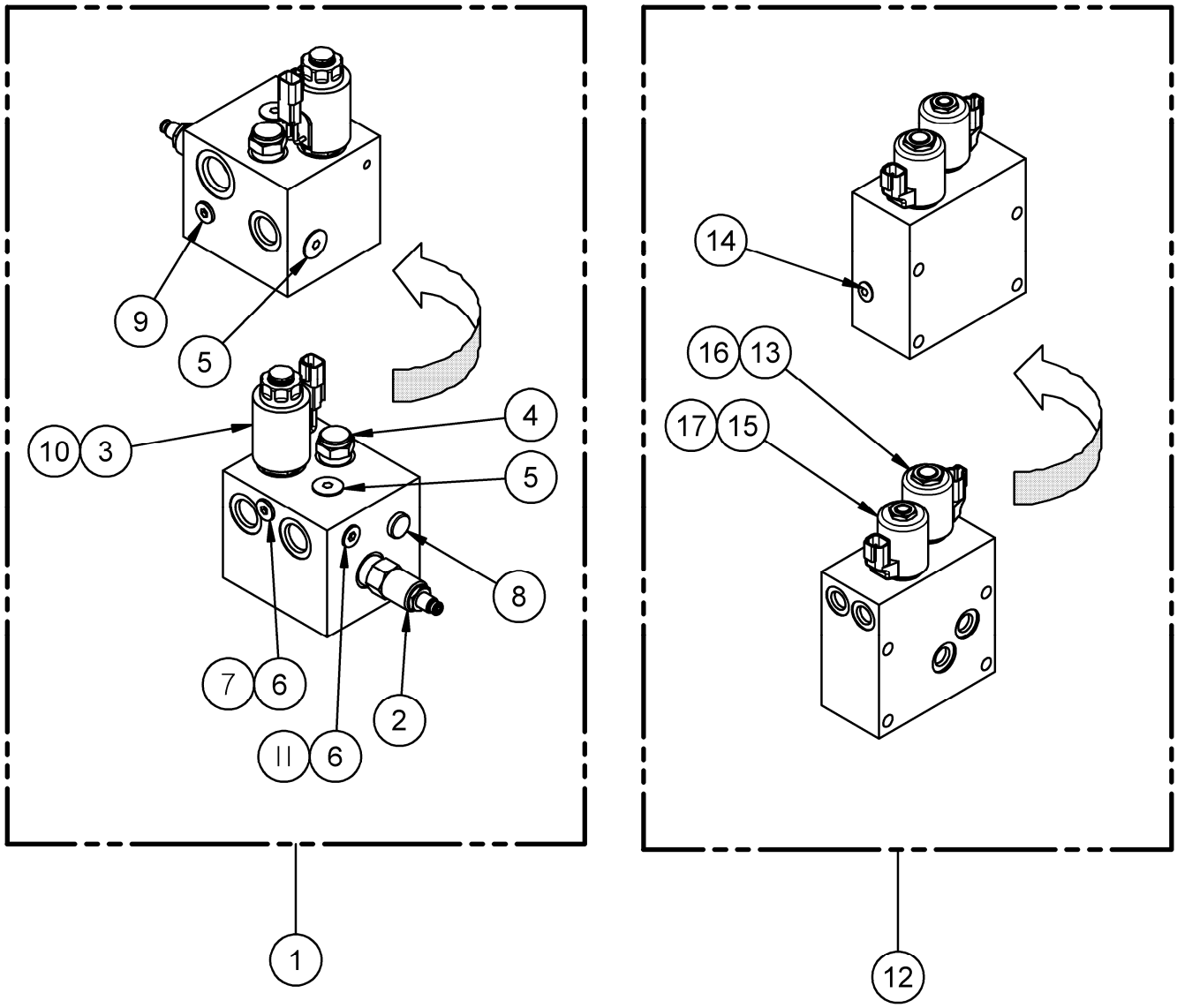
HYDRAULICS & IN-CAB ELECTRICAL



HYDRAULICS & IN-CAB ELECTRICAL

REF	PART NUMBER	DESCRIPTION	QTY	SERIAL NUMBER
1	163694	MANIFOLD-DWA DRIVE, see next page for service parts	1	
2	110575	VALVE BLOCK AUX LIFT, see next page for service parts	1	
3	144807	HOSE – HYDRAULIC	1	
4	21843	FITTING - ELBOW 90° HYD	1	
5	50221	FITTING - ELBOW 90° HYD	2	
6	50102	FITTING - HYD TEE	2	
7	21830	FITTING - CONNECTOR HYD	1	
8	30695	FITTING - CONNECTOR HYD	3	
9	30282	FITTING - ELBOW 90° HYD	2	
10	30556	FITTING - ELBOW 90° HYD	1	
11	118084	FTG - HYD REDUCER	1	
12	30994	PLUG- HEX CW O-RING	1	
13	132867	HOSE-HYD	2	
14	120572	HOSE-HYD	1	
15	50104	FITTING - ELBOW 90° HYD	1	
16	144805	HOSE – HYDRAULIC	1	
17	144806	HOSE – HYDRAULIC	1	
18	21805	FITTING - ELBOW HYD	1	
19	REF	MOTOR - SEE "DRAPER & DECK"		
20	REF	CYLINDER - SEE "DECK SUPPORTS & LINKAGE"		
21	109575	SWITCH - ROCKER, MOM-OFF-MOM	1	
22	109718	GAUGE-POTENTIOMETER	1	
23	109773	KNOB – PLASTIC	1	
24	21821	BOLT - HH FLG (SERR FACE) 3/8 NC X 0.75 GR 5 ZP	2	
25	21568	BOLT - HH 3/8 NC X 3.0 LG – units with 1 aux. drive block	4	
	10948	BOLT - HH 3/8 NC X 5.5 LG – units with 2 aux. drive blocks	4	

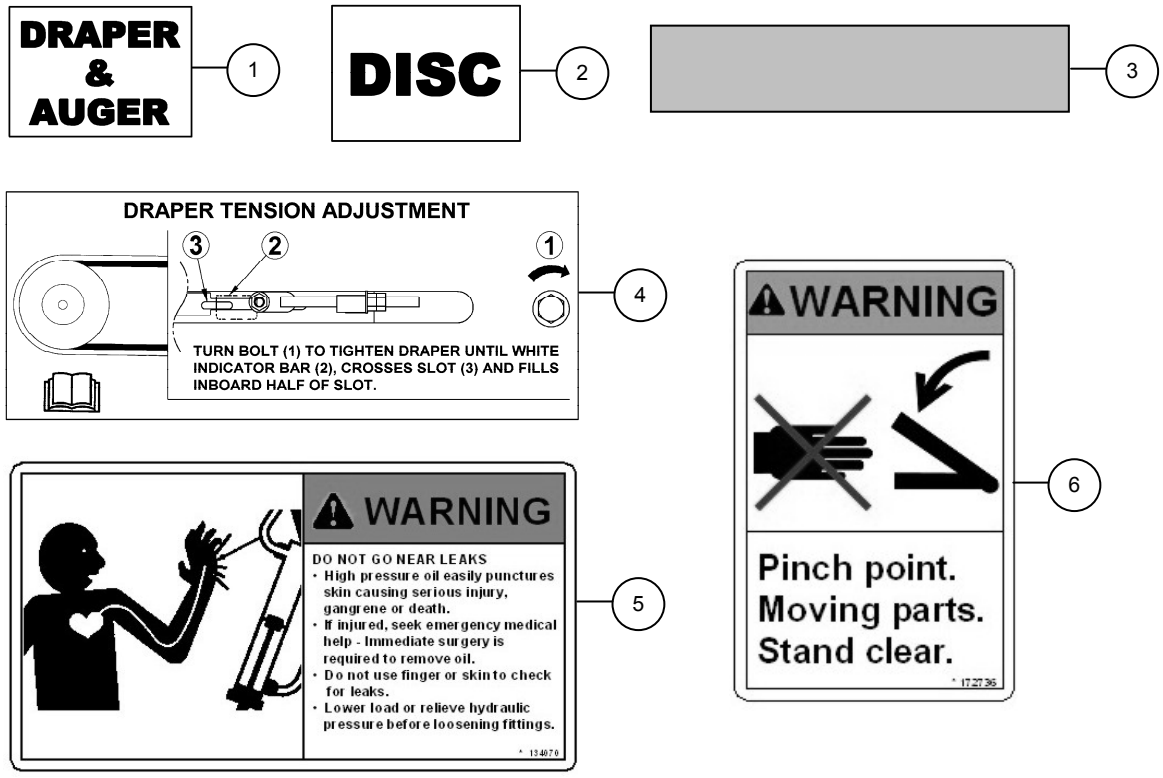
HYDRAULIC SERVICE COMPONENTS



HYDRAULIC SERVICE COMPONENTS

REF	PART NUMBER	DESCRIPTION	QTY	SERIAL NUMBER
1	163694	MANIFOLD-DWA DRIVE	1	
	49846	SEAL KIT		
2	162285	VALVE-RELIEF	1	
3	163166	CONTROL-PROPORTIONAL FLOW	1	
4	162283	VALVE-DIFF PRESS SENSING	1	
	162284	SEAL KIT #10 3 WAY-SHORT	1	
5	163159	FITTING-ZERO LEAK GOLD	2	
6	163156	FITTING-ZERO LEAK GOLD	2	
7	162286	PLUG-ORIFICE	1	
8	158174	PLUG - HEX SOCKET CW O-RING	1	
9	163149	FITTING-ZERO LEAK GOLD	1	
10	163173	COIL-ASSEMBLY	1	
	163178	SEAL KIT	1	
11	162287	PLUG-ORIFICE	1	
12	110575	VALVE BLOCK AUX LIFT	1	
	49846	SEAL KIT		
13	163142	VALVE-SOLENOID	1	
14	163156	FITTING-ZERO LEAK GOLD	1	
15	163143	VALVE-SOLENOID	1	
	163160	SEAL KIT	1	
16	163155	COIL-TOUGH	1	
17	163154	COIL-TOUGH	1	
	163191	NUT-COIL		

DECALS



REF	PART NUMBER	DESCRIPTION	QTY	SERIAL NUMBER
1	172701	DECAL – draper/auger position	4	
2	172700	DECAL – disc position	4	
3	115146	REFLECTOR – amber	1	
	115145	REFLECTOR – fluorescent red-orange	1	
	115147	REFLECTOR – red	1	
4	165281	DECAL – draper tension	1	
5	134070	DECAL – warning, hydraulic	1	
6	172736	DECAL – warning, DWA linkage	2	

NUMERICAL LIST