REDEKOP™

MAV HOUSING UPGRADE

JOHN DEERE STS 9650-9870

INSTALLATION MANUAL

PRODUCT NUMBER: **341-040, 340-085, 340-086**

RD004-01_R8

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0 Safety

0.1 Instructions

0.1.1 IMPORTANT: Read through this instruction manual thoroughly and familiarize yourself with the Redekop Housing Upgrade before installation of these components.



This instruction manual explains the proper procedure for installation of the Redekop Housing Upgrade. Do not skip steps or perform them out of order.

0.2 Recognize Safety Information

0.2.1 This is a safety-alert symbol. When you see this symbol on your straw chopper or in this manual, be alert to the potential for personal injury.



Follow recommended precautions and safe operating practices.

0.3 Understand Signal Words

0.3.1 A signal word - DANGER, WARNING, or CAUTION - is used with the safety-alert symbol. DANGER identifies the most serious hazards.



WARNING or CAUTION safety signs are located near specific hazards or precautionary areas in this manual.

0.4 Follow Safety Instructions

0.4.1 Carefully read all safet.y messages in this manual and on your machine. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new Housing Upgrade components and repair parts include the current safety signs. Replacement safety signs are available from your dealer.



There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this manual.

Learn how to operate the Housing Upgrade and how to use controls properly. Do not let anyone operate without instruction.

Keep your Housing Upgrade in proper working condition. Unauthorized modifications to the Housing Upgrade may impair the function and/or safety and affect the Housing Upgrade's life.

If you do not understand any part of this manual and need assistance, contact your dealer.

0.5 Safe Operating Practices



0.5.1 DO NOT stand near the straw chopper and Housing Upgrade when combine is running.

ALWAYS refer to your Combine Operator's Manual and review the Safety section before operating machine. The Combine Operator's Manual details safe operating practices that must be followed to protect you and others from accidental injury and/or death.

Operate Housing Upgrade only when all guards are correctly installed.

Before moving away, always check immediate vicinity of Housing Upgrade (e.g. for children). Ensure adequate visibility. Use a horn as a warning immediately before moving away.

When making turns, always take into consideration the width of the attachment and the fact that the rear end of the machine swings out. Attachments and ground conditions affect the driving characteristics.

Never leave combine unattended as long as engine is running.

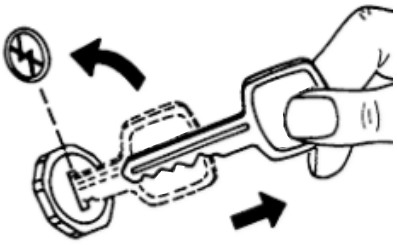
0.6 Work In Ventilated Area



0.6.1 Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.

0.7 Remove Key from Ignition



0.7.1 ALWAYS shut off combine engine prior to working on it.

Apply park brake, remove key and lock operators cab.

If the combine is equipped with an additional safety master power switch, turn this to the Power OFF position.

0.8 Block Wheels

0.8.1 Park the combine on level ground.

Always engage the park brake and block the combine wheels prior to working to prevent the combine from moving.



0.9 Practice Safe Maintenance

0.9.1 Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust Housing Upgrade while it is moving. Keep hands, feet and clothing away from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on Housing Upgrade.



0.10 Guards and Shields

0.10.1 Keep guards and shields in place at all times. Ensure that they are serviceable and maintained correctly.



0.11 Avoid Contact With Moving Parts

0.11.1 Keep hands, feet and clothing away from power driven parts. Never clean, lubricate or adjust Housing Upgrade when it is running.



0.12 Avoid High-Pressure Fluids



0.12.1 Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately.

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.

0.13 Dispose of Waste Properly



0.13.1 Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste includes such items as oil, fuel, coolant, brake fluid, filters and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain or into any water source.

0.14 Use Proper Lifting Equipment



0.14.1 Lifting heavy components incorrectly can cause severe injury or Housing Upgrade damage.

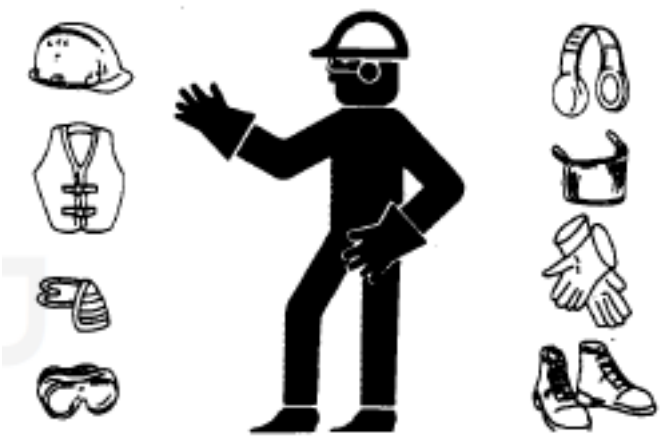
Follow recommended procedure for removal and installation of components in the manual.

Ensure lifting equipment is rated for the job

Ensure operator is appropriately licensed to operate lifting equipment

0.15 Personal Protective Equipment (PPE)

0.15.1 A Qualified Person designated by the employer, who is knowledgeable about and familiar with all relevant specifications and assembly instructions and is capable of identifying existing or potential hazards in surroundings or working conditions which may be hazardous or dangerous to employees shall determine appropriate Personal Protective Equipment required for this assembly.

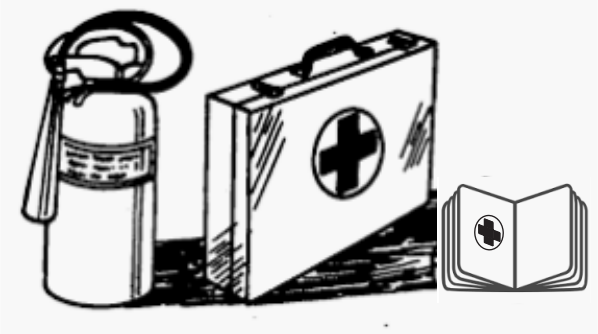


Personal Protective Equipment (PPE) are devices worn by the employees to protect against hazards in the environment. Examples include safety glasses, face shields, respirators, gloves, hard hats, steel-toe shoes, and hearing protection. Wear close fitting clothing and safety equipment appropriate for the job.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

0.16 Prepare for Emergencies

0.16.1 Be prepared if a fire starts.

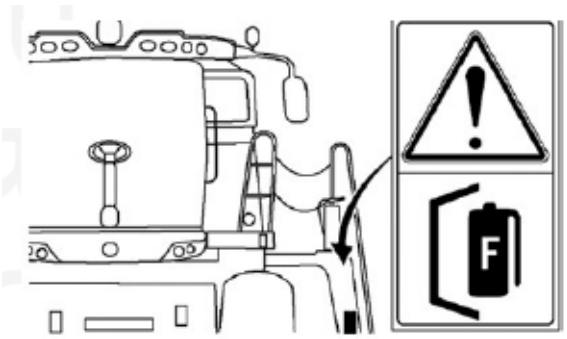


Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.

0.17 Fire Extinguisher

0.17.1 A 6 kg (15 lb) general-purpose fire extinguisher meeting national certification requirements must be installed on left side of operator's platform.



Maintain fire extinguisher to keep it in operating condition.

Make sure that the fire extinguisher is always ready for use. Refer to the fire extingisher's manual for instructions on how to operate it. Once extinguisher is operated - no matter how long - it must be recharged.

Keep the engine clean and free of dust, chaff and straw to prevent the possibility of fire.

0.19 Remove Accumulated Crop Debris



0.19.1 The build up of chaff and crop debris in the engine compartment, on the engine, near bearings and moving parts is a fire hazard. Check and clean these areas frequently.

0.20 In the Event of Fire

0.20.1 Stop work immediately at first sign of fire. This may be the smell of smoke or the sight of smoke or flames. Get off the machine immediately and move away from the fire. Do not return to the machine or fire!



CAUTION: Avoid personal injury.
If a fire is too far advanced, do not try to extinguish it.
Call the fire department!
The number one priority is safety. Always put the safety of the operator and bystanders first.

If a fire can be safely extinguished, proceed carefully and follow these guidlines:

1. Remove fire extinguisher from bracket and carry it to the area of fire.
2. Approach area of fire with your back to the wind.
3. Pull the safety pin out of actuating lever.
4. Hold extinguisher upright, pointing nozzle away from you and aim hose at base of the flames.
5. Squeeze the lever slowly and evenly to discharge fire extinguisher.
6. Move extinguisher nozzle side to side to cover the source of the fire evenly with extinguishing agent.

0.20 Safety Decals

Pictorial Safety Signs

At several important places on this machine, safety signs are affixed intending to signify potential danger. The hazard in identified by a pictorial in a warning triangel. An adjacent pictorial provides information on how to avoid personal injury. These safety signs and a brief explanatory text follow.

Hand Injury / Rotate Danger
RP1089
Risk of injury caused by rotating parts.



Projectile Hazard / Stand Clear
RP872
Stay clear of these components when the engine is running.



Caution / Check Service Manual
RP873
This operator's manual contains all important information necessary for safe machine operation. Carefully observe all safety rules to avoid accidents.



Keep Hands out of Belt Area / Rotate Danger
RP874
Do not touch any moving parts. Wait until all moving parts have stopped.



Kickback Hazard / Stand Clear
RP1086
Avoid personal injury. Kickback hazard when removing access panel.



Caution / Hearing Protection Required
RP1090
Use hearing protection whenever operating the machine.



Hand Injury / Rotating blade hazard
RP243

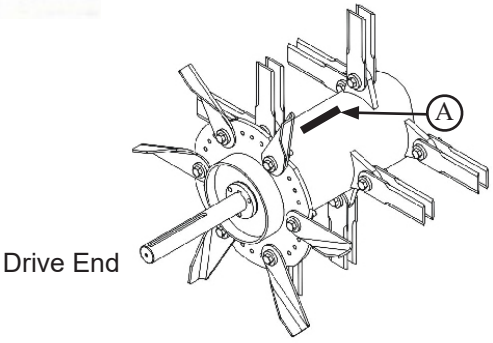


Shield Missing
RP242

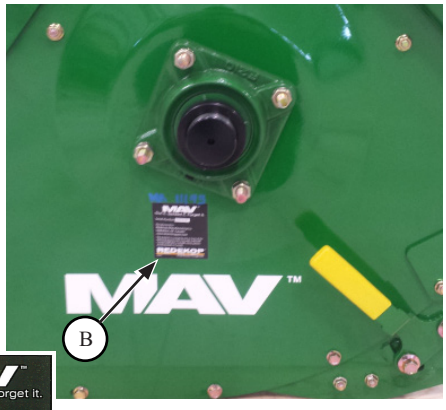


0.21 Serial Number

0.6.1 The rotor serial number (A) is stamped on the rotor, located on the drive end, in line with the shaft keyway



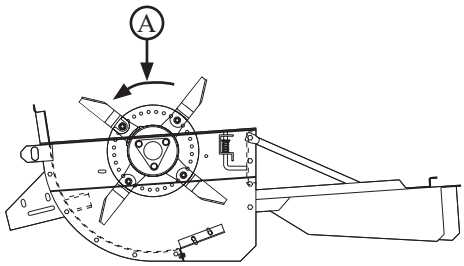
0.6.2 The straw chopper serial number plate (B) is located on the chopper wall, on the non-drive side.





ROTOR BLADE

IMPORTANT! The paddle blades, located on the balance rings inside the chopper, must be installed in the direction shown (A). The straight edge of the blade cuts the air while the paddle trails behind & pushes the air.



1. The blades for your chopper must be installed as outlined.
Note: If blades are installed other than as directed, damage to the chopper may result or performance may be significantly reduced.

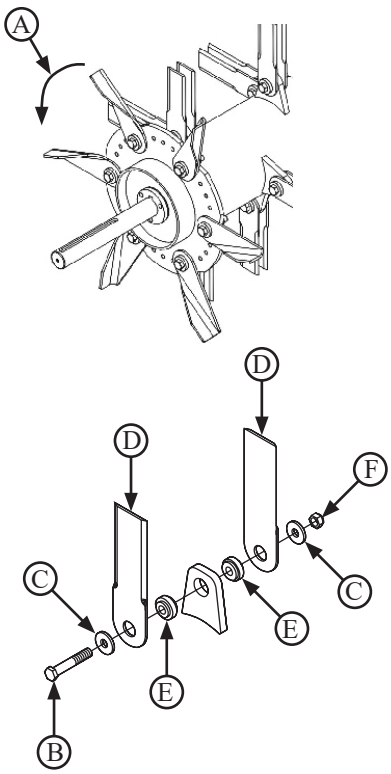
1) Always replace blades two pairs at a time, directly opposite each other through the center of the rotor. This should maintain rotor balance. Never replace only one blade for wear or breakage. You do not need to replace the corresponding two pairs on the other end of the rotor.

2) If a blade breaks and the chopper must be operated without a replacement then the damaged blade and the one directly opposite it must both be removed to maintain rotor balance.

3) Use only METRIC class 10.9 bolts (B) and class 10.9 DIN980V steel lock nuts (F) on the chopper rotor.

4) Use a torque wrench to tighten all M12 nuts to the recommended 69 ft-lb.

5) Always check for adequate clearance between the installed blades and the stationary knives. A minimum of 1/4" is required. Check clearance of all blades, even those that are not replaced. Do not operate the straw chopper unless this clearance is maintained for all blades.



2. Assembly order for blade pairs (B to F).

A - Blade direction
B - Hex cap screw
C - Washer
D - Blade, straight
E - Bushing, straight blade
F - Lock nut

Metric Bolt Torque Table

Property Class	8.8	8.8	10.9	10.9
Nominal Size & Thread Pitch	(Nm)	(Ft-lbs)	(Nm)	(Ft-lbs)
M6x1.00	8*	6	11	8
M8x1.25	19	14	27	20
M10x1.50	38	28	54	40
M12x1.75	66	49	94	69
M14x2.00	106	78	150	111
M16x2.00	164	121	233	172
M18x2.50	226	167	323	238
M20x2.50	319	235	457	337

*All values for dry, yellow zinc plated hardware

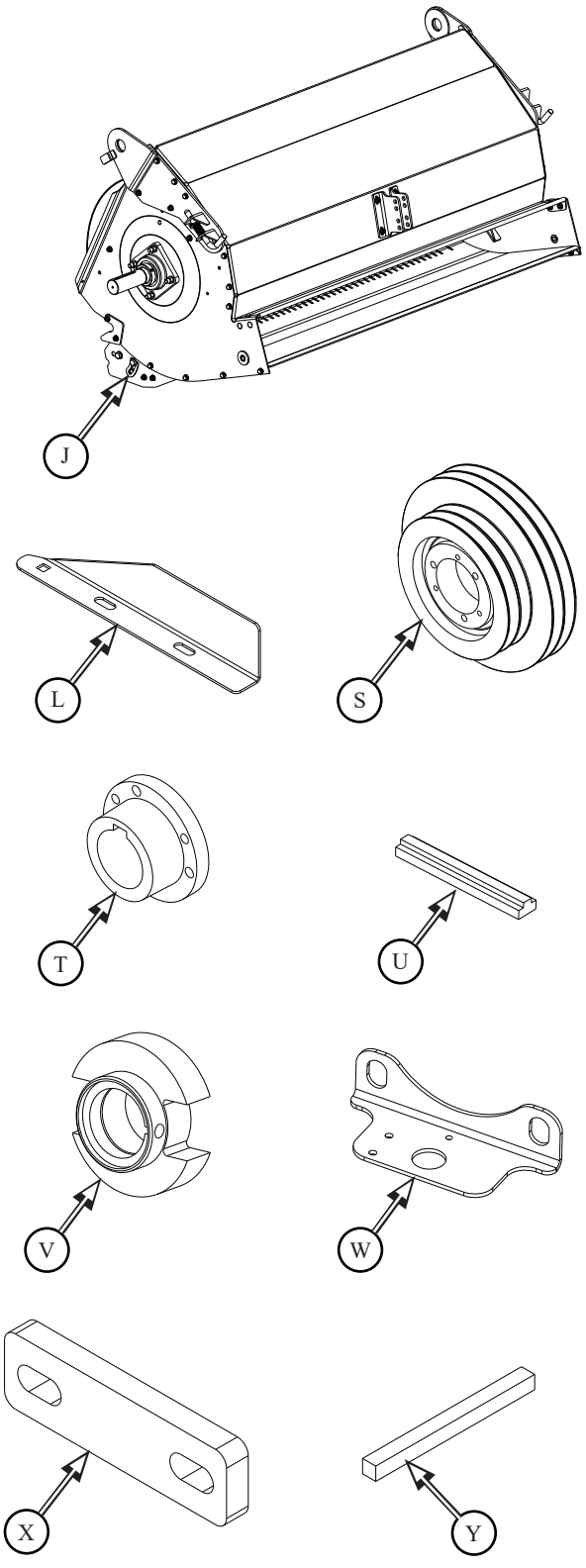
CAUTION: Always use METRIC class 10.9 bolts and class 10.9 DIN980V steel lock nuts when installing blades. Allowable torque range for blade mount nuts is:
45 ft-lb for M10 hardware
60 ft-lb for M12 hardware

Torque values listed are for general use only, based on the strength of the bolt. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instruction for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

"Dry" means plain or zinc plated without any lubrication.

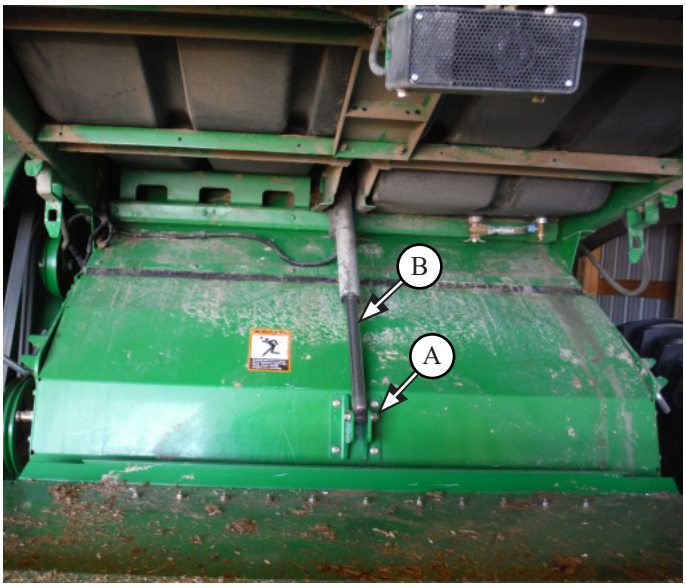
KIT CONTENTS

REF	ITEM NAME	ITEM DESCRIPTION	QTY
J	CD543GA	STS Housing Upgrade Unit	1
L	CD114G	Beater Fin Sts	2
S	RP966	Sheave 2B/2B	1
T	RP914	Bushing SK 48mm	1
U	CD502-02	Key Stepped	1
V	CD459G	Target Lug STS (70S)	1
W	CD458G	Speed Sensor Mount Brkt (70S)	1
X	CD718G	Spacer	2
Y	CD551-01	Key Square	1



1 Removal of Factory Chopper

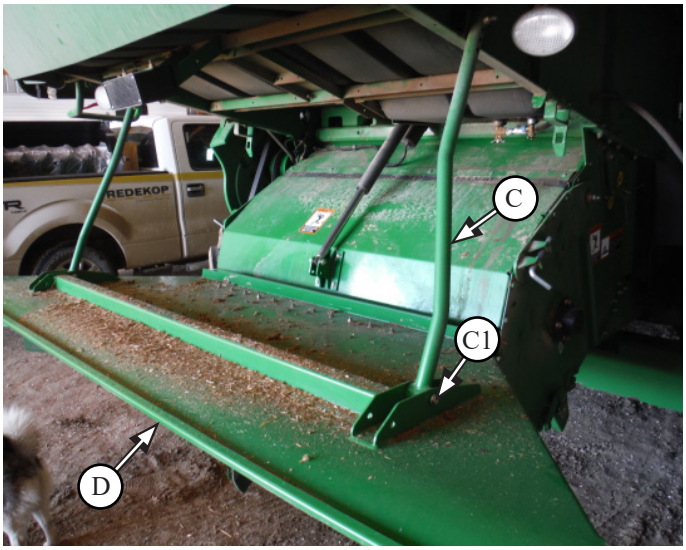
1.1 Take pin (**A**) off from actuator (**B**)
- Tie actuator up with plastic ties to prevent damage during installation.

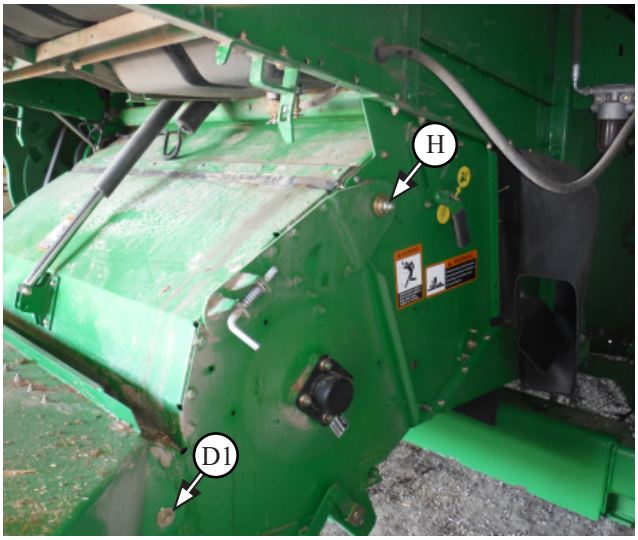


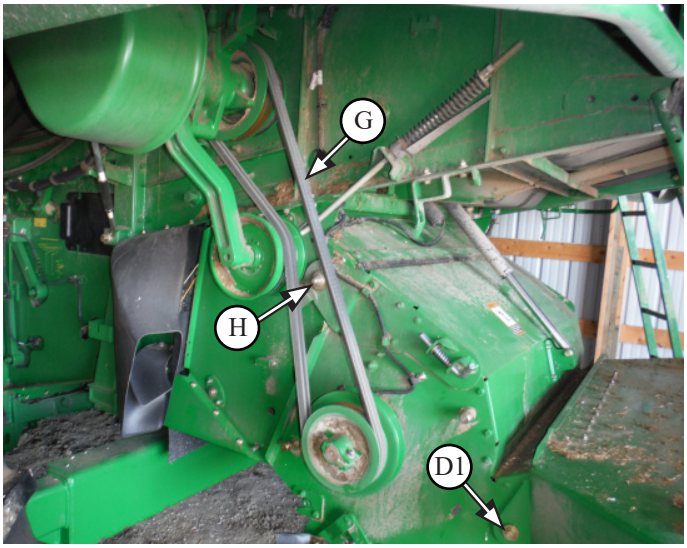
1.2 Remove bolts (**C1**) x2 from tailboard arms (**C**) and release tailboard (**D**)
- Remove hardware (**D1**) from tailboard sides to take it off the chopper unit.

1.3 Remove drive belt (**G**) from the sheaves

1.4 Place the pallet under factory chopper, remove side bolts, washers and bushings (**H**) on each side of chopper and remove factory chopper from the combine.





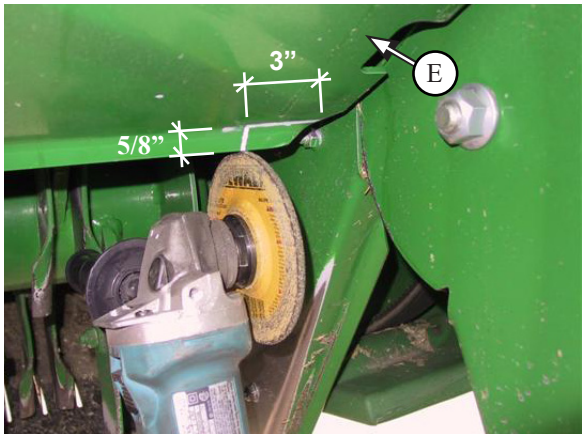


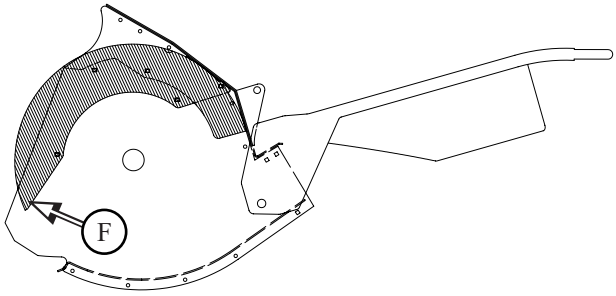
Factory Corn Door Modification

Problem:
The John Deere factory corn door (**E**) strikes the Redekop shrouds (**F**) when the chopper is rotated back for windrowing straw. The corn door must be modified to eliminate the shrouds from being damaged.

Solution:
Use a grinder to cut away 3” x 5/8” from each corner of the corn door to allow for proper clearance of the Redekop shrouds.

Attention:
FAILURE TO MODIFY CORN DOOR CORRECTLY MAY RESULT IN DAMAGE TO REDEKOP PARTS AND FACTORY CORN DOOR!



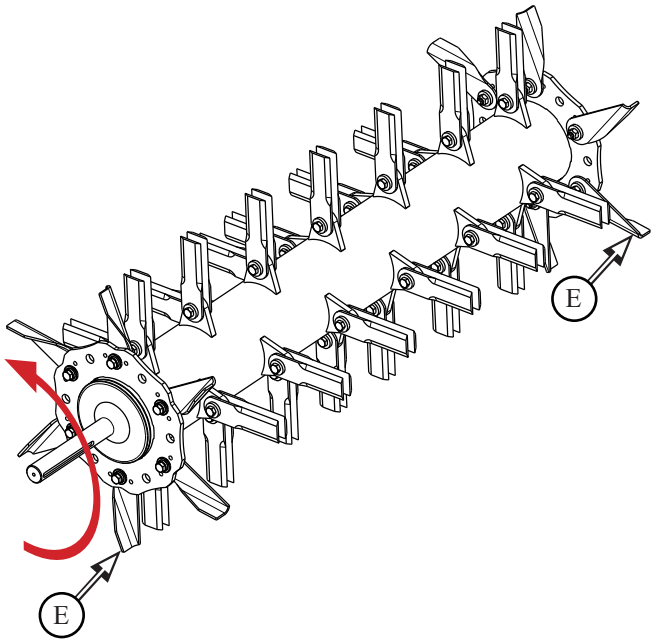


2 Installation of Redekop STS Housing Upgrade

2.1 Install wide spread fan blades if the wide spread option has been purchased

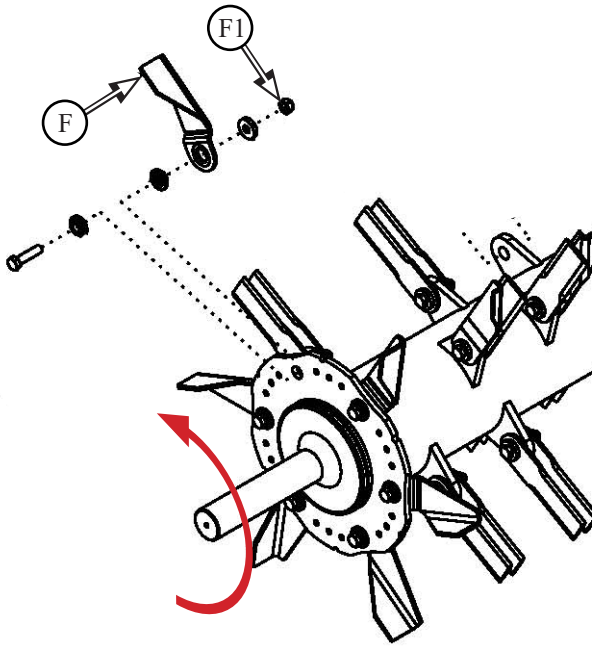
2.1.1 Remove standard spread 1.5in MAV fan blades (**E**) from outer ring of rotor
- both sides

- when removing and replacing fan blades with the rotor installed in the chopper housing, there will not be enough room to remove the bolt completely. Remove nut, flat washer and fan blade and replace with new fan blade, flat washer and new locknut.



2.1.2 Install wide spread 2.0in MAV fan blades (**F**) onto outer ring
- reuse bolts, bushings and flat washers
- use new M12 lock nuts (**F1**) included

** Ensure the blades are installed with paddle in direction of rotation **
** Ensure the blades are on the inside of the ring **
** Ensure the heads of the bolts are on the outside of the ring **



2.1.3 Manually rotate rotor, holding blades out to verify clearance of each blade in relation to the shrouding.
There should be 3mm (1/8”) clearance between the fan blades and any bolt-heads to allow for blade deflection.

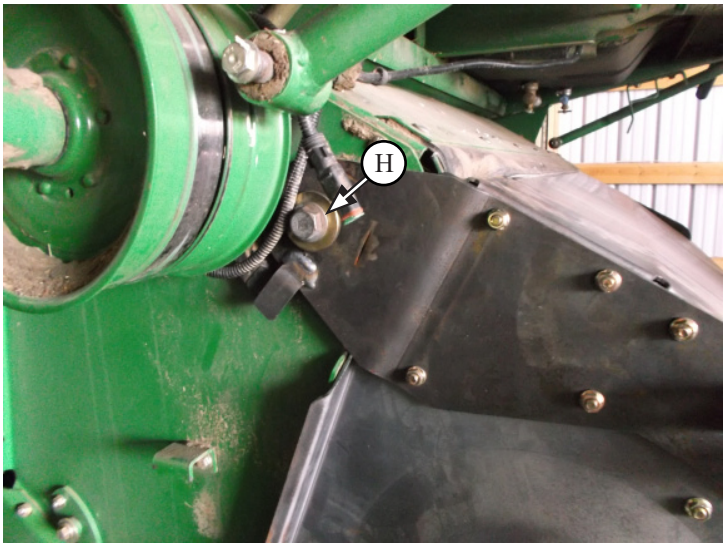
2.1.3.1 In order to provide the proper clearance, adjust the rotor from side to side. Continue adjusting until the blades have no contact with the shrouds, bolt-heads, knifebar blades or any part of the housing.

2.1.4 Install tailboard fins as the final procedure after the housing has been installed to the combine

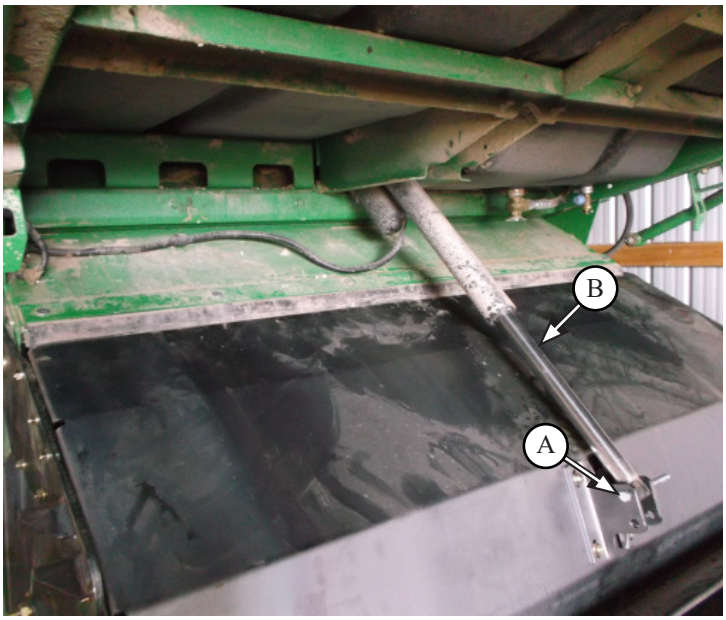
2.2 Unstrap new STS Upgrade Chopper Housing (**J**) from pallet and lift close to former housing location



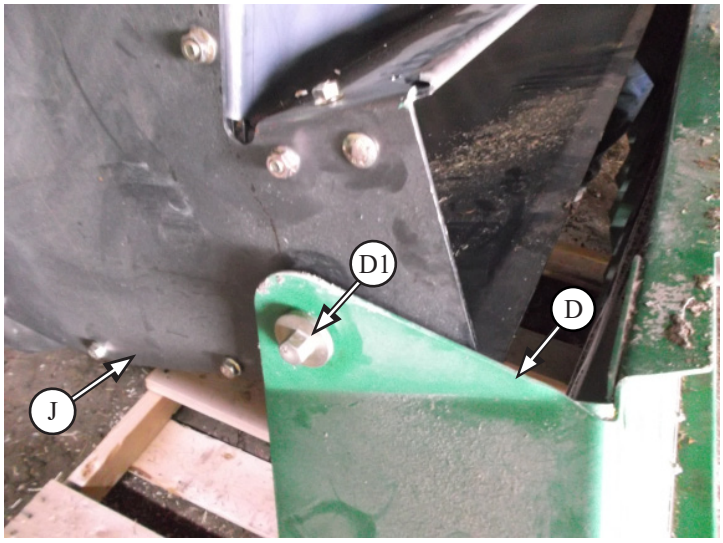
2.3 Secure chopper housing into place, with:
- reuse existing hardware (**H**)



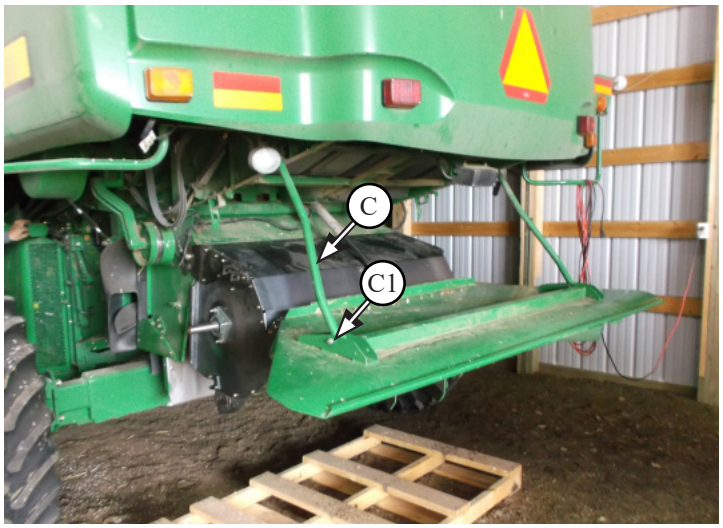
2.4 Re-connect actuator (**B**) with existing pin (**A**)



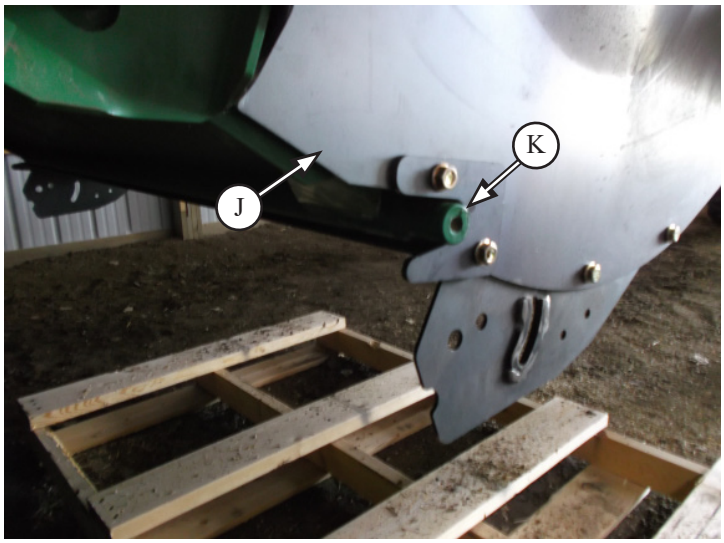
2.5 Re-attach factory tailboard (**D**) to Redekop housing (**J**), with:
- reuse existing hardware (**D1**)



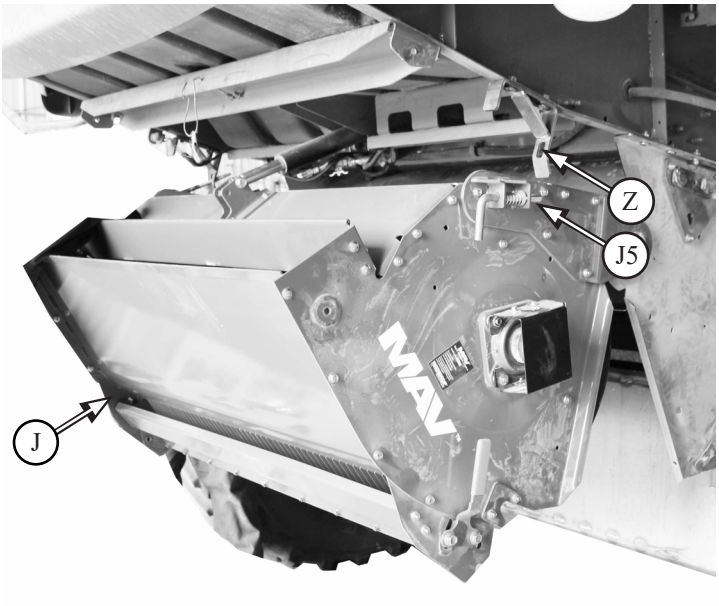
2.6 Re-connect tailboard arms (**C**), with:
- reuse existing hardware (**C1**)

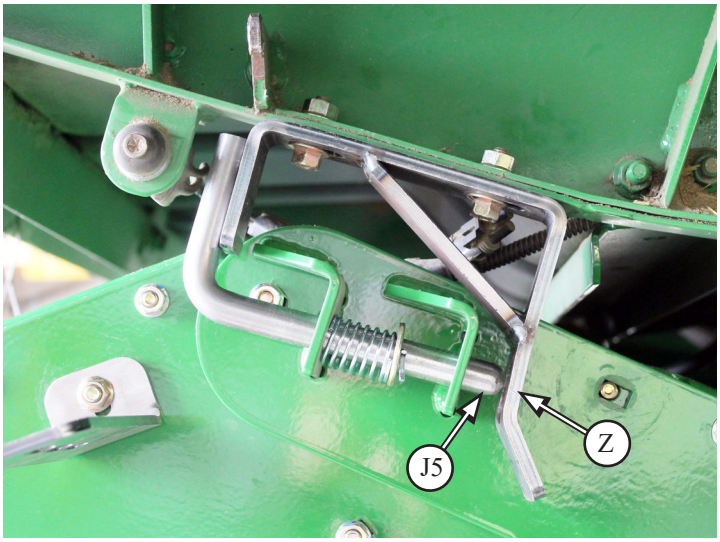


2.7 Slide chopper housing (**J**) down until it fits into notch (**K**)

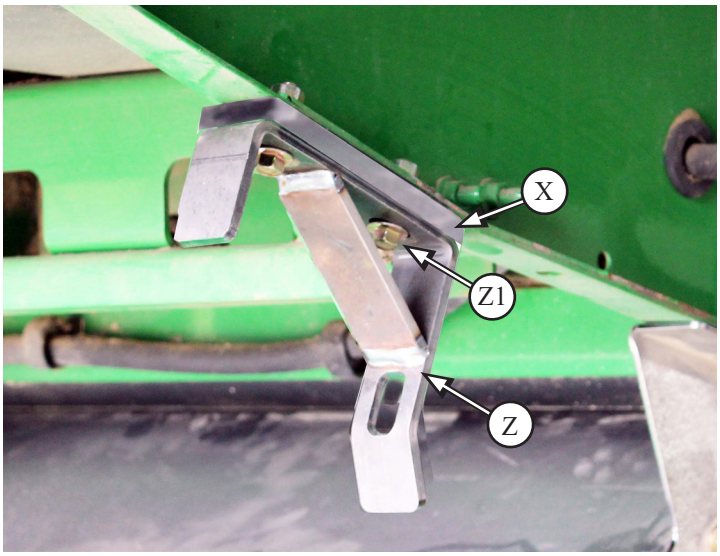


2.8 Rotate chopper housing (**J**) up into sieve access mode to check alignment of chopper locking pin (**J5**) to combine locking bracket (**Z**)





2.9 Install spacer plate (**X**) between bracket (**Z**) and combine if pin does not align with hole in bracket, with:
- M10 x 50 flange bolt and flange nut (**Z1**) x2
- both sides



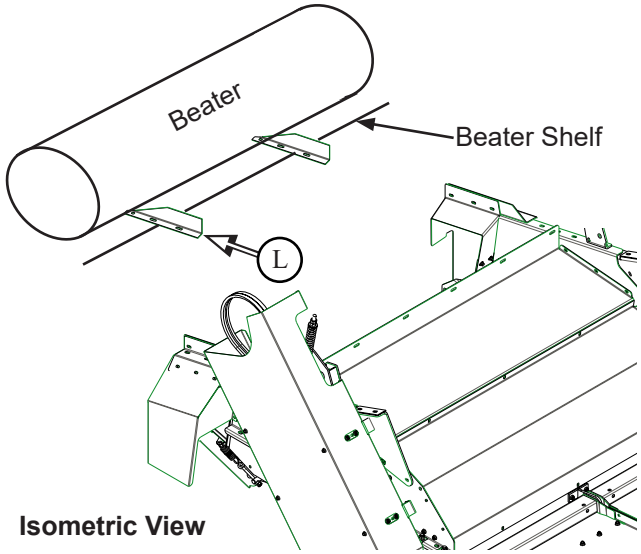
2.10 Re-install drive belt (**G**)

3 Beater Deflector Fins

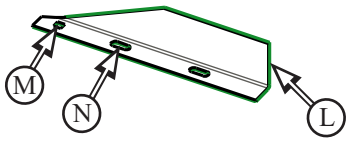
3.1 Install deflector fins (**L**) for better distribution of residue across the width of the chopper. Place behind the beater and on top of the beater shelf. See illustrations for placement. Drill 7/16” dia. holes & bolt in place.

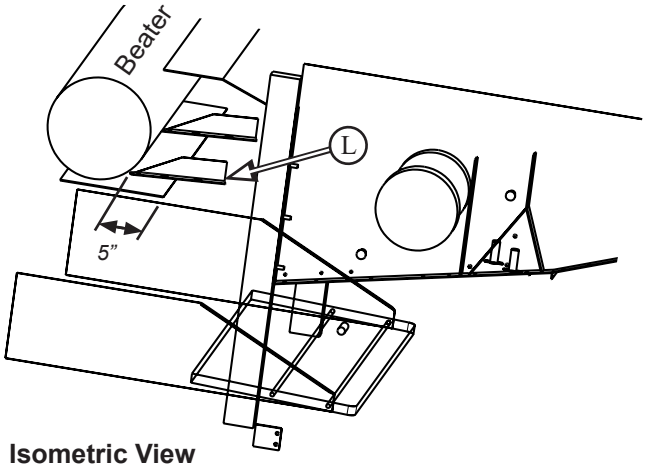
Hardware
M10 x 25 round head bolt and flange nut (**M**) x2
M10 x 20 round head bolt and flange nut (**N**) x2

Use ONLY slots M & N

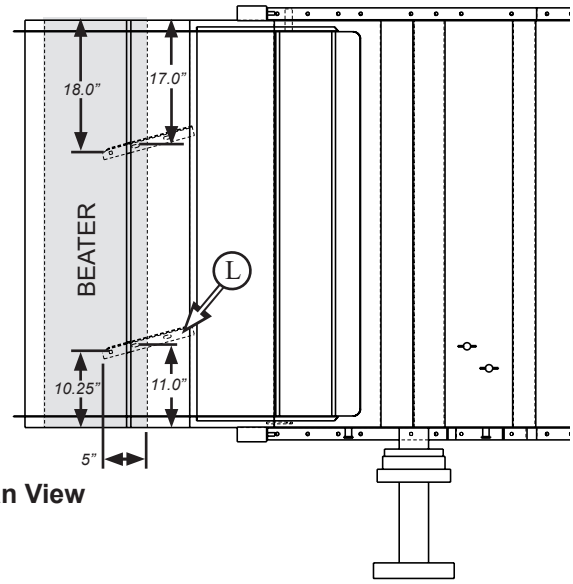


Isometric View





Isometric View



Plan View

4 Drive STS 50-60 Series Combines

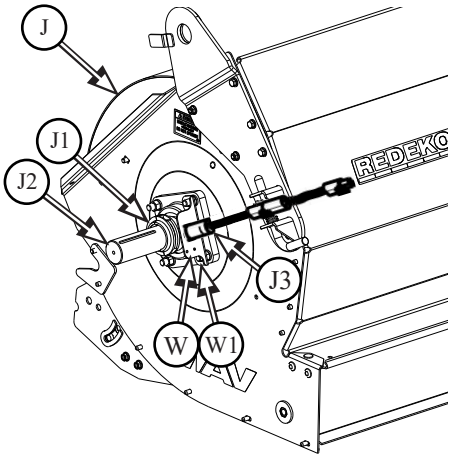
4.1 Install speed sensor mount bracket (**W**) to the top two bearing bolts, with:
- M12 Jam Nuts (**W1**) x2

4.2 Remove collar from OEM speed sensor magnet target (**J1**)

4.2.1 Install OEM speed sensor magnet target (**J1**) onto chopper shaft (**J2**) tight to bearing lock collar

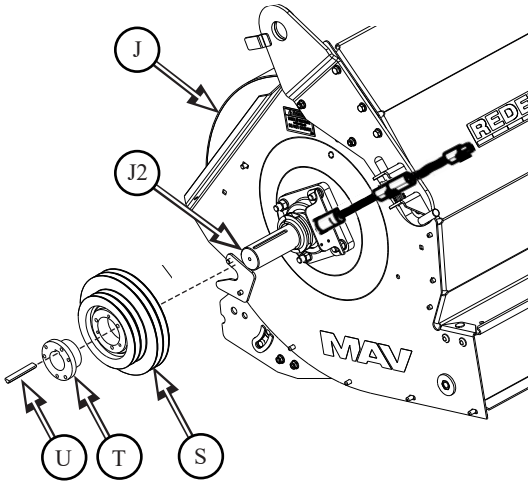
4.3 Install existing speed sensor pickup (**J3**) into mount bracket (**W**)

4.4 Re-attach existing cable extension to speed sensor pickup (**J3**)



4.5 Assemble drive sheave (**S**), bushing (**T**) and stepped key (**U**) onto chopper shaft (**J2**)
- Ensure sheaves are aligned with the jackshaft sheaves for smooth belt operation.

See Appendix 2 - Optional Mounting Fig. 2: for Bushing/ Sheave Installation Instructions with a SK Tapered Bushing



** Slow Speed Corn Drive Kit Pulleys
See the Slow Speed Drive Install instructions when installing the Corn Drive Option

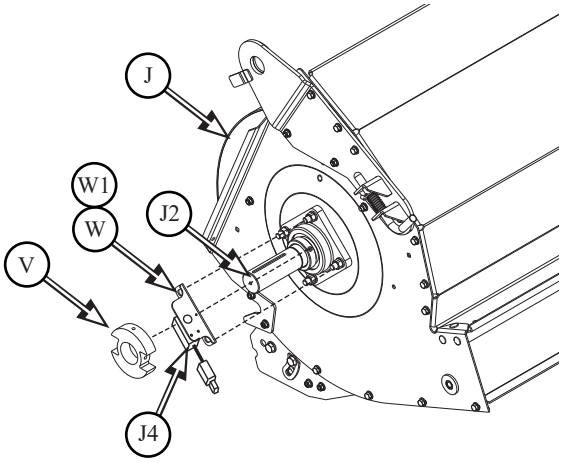
5 Drive STS 70 Series Combines

5.1 Assemble speed sensor target (**V**) to chopper shaft (**J2**)

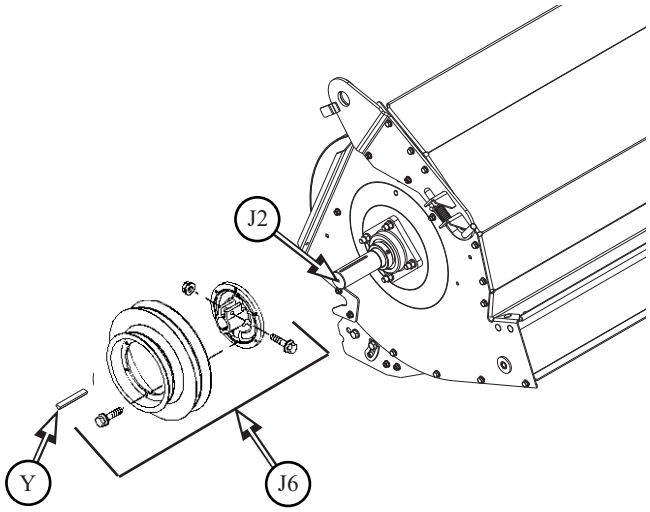
5.2 Install speed sensor mount bracket (**W**) to the top two bearing bolts, with:
- M12 Jam nuts (**W1**)

5.3 Re-install existing speed sensor pickup (**J4**) to speed sensor mount bracket (**W**), with :
- reuse existing hardware

5.4 Attach cable extension and route wire to combine harness break-out



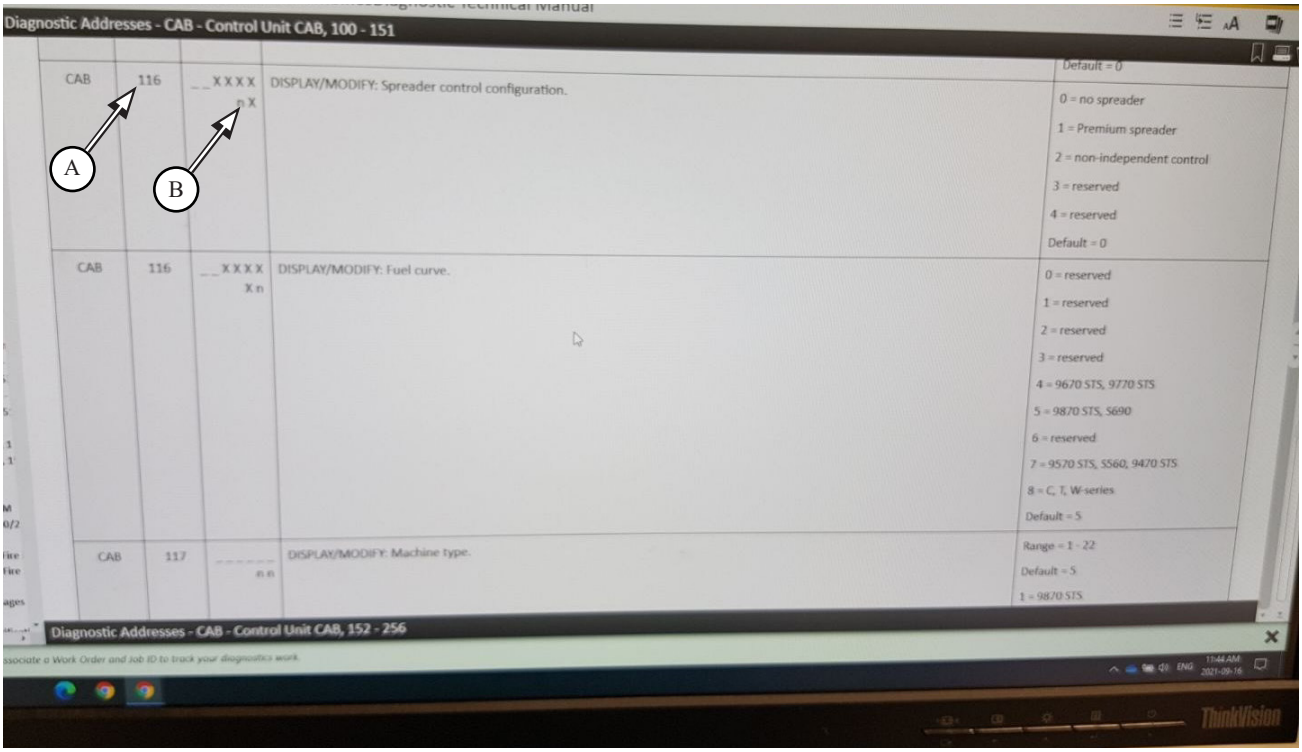
5.5 Assemble existing OEM drive sheave, bushing (**J6**), and key (**Y**) onto chopper shaft (**J2**)
- ensure sheaves are aligned with the jackshaft sheaves for smooth belt operation



** Slow Speed Corn Drive Kit Pulleys
See the Slow Speed Drive Install instructions when installing the Corn Drive Option

5 Software Update for STS 70 Series Combines with Powered Straw Spreader Removed

5.1 Line #116 (**A**), change the second last number (**B**) to 0



Appendix: 1 - Hardware Classification

B##	**Bolt - Imperial**	
	HEX	Bolt Hex Head
	FLG	Bolt Hex Flange Head
	RH	Bolt Round Head, Carriage
	CS	Bolt Countersunk
N##	**Nut - Imperial**	
	JAM	Nut, Jam
	LOCK	Nut, Lock
P##	**Pin - Imperial**	
	ROLL	Pin, Roll
	COT	Pin, Cotter
	HITCH	Pin, Hitch Clip
	LYNCH	Pin, Lynch
	CLEVIS	Pin, Clevis
	SPIROL	Pin, Spirol
W##	**Washer - Imperial**	
	FLAT	Flat
	LOCK	Helical Lock
	FEN	Fender Washer

B##M	**Bolt - Metric**	
	HEX	Bolt Hex Head
	FLG	Bolt Hex Flange Head
	RH	Bolt Round Head Carriage
	CS	Bolt Countersunk
N##M	**Nut - Metric**	
	JAM	Nut, Jam
	LOCK	Nut, Lock
P##M	**Pin - Metric**	
	ROLL	Pin, Roll
	COT	Pin, Cotter
	HITCH	Pin, Hitch Clip
	LYNCH	Pin, Lynch
	CLEVIS	Pin, Clevis
	SPIROL	Pin, Spirol
W##M	**Washer - Metric**	
	FLAT	Flat
	LOCK	Helical Lock
	FEN	Fender Washer

Description: BOLT HEX .5 X 1 GR5 UNC

Type = Hex
Diameter = 0.5 inch
Imperial Spec = GR5 UNC
Length = 1 inch

Hardware Diameter	Wrench Size
1/4in Hardware	7/16in
5/16 Hardware	1/2in
3/8 Hardware	9/16in
1/2 Hardware	3/4in
5/8 Hardware	15/16in

Description: BOLT HEX M8 X 40 C8.8

Type = Hex
Diameter = 8mm
Metric Spec = C8.8
Length = 40mm

Hardware Diameter	Wrench Size
M6 Hardware	10mm
M8 Hardware	13mm
M10 Hardware	15mm or 16mm
M12 Hardware	18mm or 19mm
M16 Hardware	24mm

IMPORTANT: DO NOT USE LUBRICANTS IN THIS INSTALLATION

To Install Bushing:

1. Remove all paint, oil grease, etc. from tapered surface of bushing and bore of mating part.

2. See **Standard** mounting assembly - Figure 1.

2a. See **Optional** mounting assembly - Figure 2 - when the sheave's tapered bore prevents standard mounting.

NOTE: If bushing does not slide freely on shaft, wedge a screwdriver blade into the saw cut and the flange OD to open the bore of the bushing. Caution: Excessive wedging will split the bushing.

3. **Standard Mount** – Slide bushing on shaft, flange first. If using the setscrew, snug it against the key. **Excessive Torque will cause mating part to be eccentric.** Position mating part in place on bushing aligning drilled holes in mating part with tapped holes in bushing flange. Using lockwashers, install capscrews thru the mating hub and into the bushing flange. (**Note:** Be sure the three tapped holes in the mating hub **do not** align near the bushing saw cut. If they do, rotate the bushing 60 degrees.).

3a. **Optional Mount** – Slide sheave (in correct orientation) onto shaft first. Next, slide bushing into sheave and onto shaft, flange outward. If using the setscrew, snug it against the key. **Excessive Torque will cause mating part to be eccentric.** Position sheave in place on bushing aligning drilled holes in bushing with tapped holes in sheave. Using lockwashers, install capscrews thru the bushing and into the sheave. Be sure the three tapped holes in the sheave **do not** align near the bushing saw cut. If they do, rotate the bushing or sheave 60 degrees.

4. **Use A Torque Wrench.** Tighten all capcrews evenly and progressively in rotation to the torque value listed in the table. **Excessive wrench torque, closing the gap between the bushing flange and mating hub, or the use of lubricants will break the mating hub.**

To Remove Bushing:

1. Loosen and remove all capscrews.

2. Thread capscrews into tapped holes in mating part to jack against bushing flange. Tighten bolts evenly and progressively in rotation to separate the two components.

3. Loosen setscrew to slide bushing from shaft.

Standard Mounting

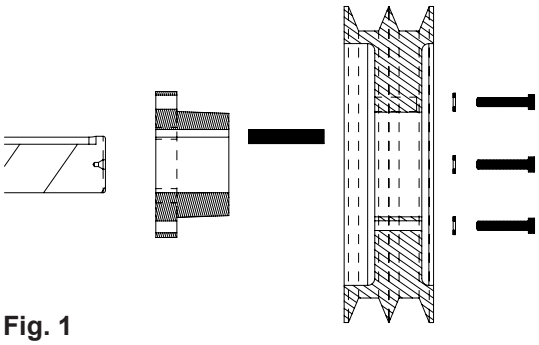


Fig. 1

Optional Mounting

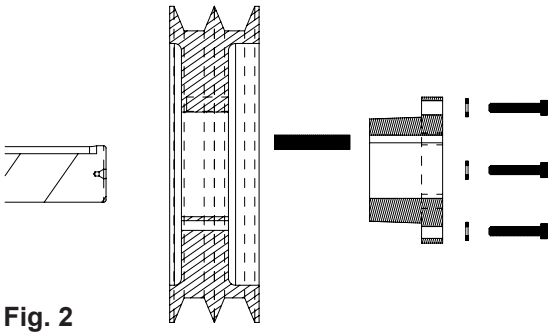


Fig. 2

Screw Tightening Information

Tapered Bushing	Size & Thread of Capscrew	Ft.-Lbs. To Apply With Torque Wrench
SK	5/16 - 18	15
SF	3/8 - 16	30

CAUTION

Check that all tools and loose hardware have been removed from the combine and SCU before running SCU

CAUTION

Check all fasteners to ensure they have been properly tightened

Torque Table		
Nominal Size	Class 8.8	Class 10.9
	Nm / (ft-lbs)	Nm / (ft-lbs)
M8 - flanged	27 / (20)	39 / (29)
- non flanged	25 / (18)	35 / (26)
M10 - flanged	54 / (40)	57 / (42)
- non flanged	49 / (36)	70 / (51)
M12 - flanged	93 / (69)	134 / (98)
- non flanged	85 / (63)	121 / (90)

CAUTION

Wear Hearing Protection during operation

CAUTION

When starting chopper, be sure all people are clear of the rear of the combine

Start threshing module in low speed and listen for clearance problems. If a knocking noise is heard, stop the machine immediately! Fix problem and repeat procedure. Progress to full power when everything is running smoothly at lower speeds.

REDEKOP MANUFACTURING

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For additional and the most up to date Manuals:

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