ShieldAg / ARRO® kits, parts diagrams & service bulletins 10/01/2020

After three years of production and use in the field, the primary spares we recommend stocking are:

Cutting Discs · Bearings · Dust seals · Torx head screws
Fortunately for your parts stocking plans, all of the LH and RH disc blades for every
model of ARRO® row crop conversion are the same, there is a Left hand (TOP) disc
and a Right hand (BOTTOM) disc, those are "handed" and have their own part
number; all bearings, dust seals and the screws required for disc assembly are the
same for all models. All orders for discs will be furnished with new screws starting
on 10/01/2020

See service bulletin V20201001 for a running change we have made to cutting discs and screws.

Please tell your customers to torque replacement screws to 21 lb-ft.

Attached are diagrams (and any appropriate service bulletins) for all models. As of January 2020, we offer ARRO® corn head retrofit kits for these corn heads:

- Deere 40 & 90-Series, Deere 600C-Series
- CaseIH 3200 & 3400-Series, CaseIH 2200 & 2400-Series, which now will include New Holland 96C, 98C and 99C-series and any other New Holland corn head that crosses over directly to the CaseIH model.
- CaseIH 1083-Series and CaseIH 4400-Series
- AGCO (Massey/Gleaner) / Challenger-Hugger Header
- Claas Corn Heads for Claas/Lexion/Cat

If you have any questions, please call Paul Ehler, or Andy Klamm.

Thank you for your growing interest in this great product line! We truly ARE

MAKING MILO HARVEST FUN AGAIN!!!

ARRO® is protected by US Patent # 10,123,480 by Kopper Kutter LLC, Cimarron, KS

And distributed by ShieldAg Equipment, Hutchinson, KS 800-798-1968

www.shieldag.com

JOHN DEERE 600C SN > 745101, 6-TOOTH DRIVE SPROCKET

DRAWING NUMBER: KK-882076

(2) LEFT (TOP) DISC

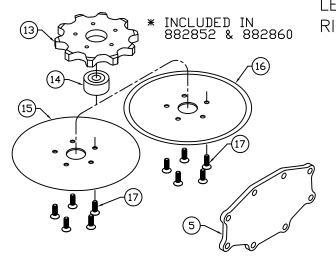
DRILL TEMPLATE SUPPLIED BY DEALER

FOR 2019, DRILL TEMPLATE AND CHAIN

GUIDES WILL CHANGE TO

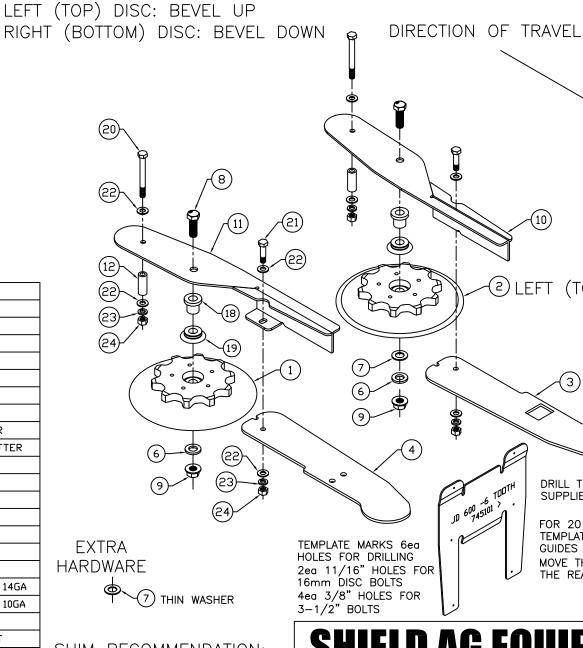
MOVE THE DISCS 급" TO THE REAR OF THE HEADER

#31789100



#616110	#616110 BOX 24 X 10 X 6						
24	4	330035	HEX NUT .375				
23	4	330043	LOCK WASHER .375				
22	æ	330894	FLAT WASHER .375				
21	2	335703	HHCS .375 X 1.5				
20	В	331892	HHCS .375 X 3.5				
19	Ŋ	400747	DUST SEAL				
18	D	314864	BUSHING 1.25 X 1.088				
17	*	339804	SCREW .313 X .750138" HEAD				
16	*	502732	BLADE 9"x3MM FLAT-TOP CUTTER				
15	*	502724	BLADE 9"x3MM FLAT-BOTTOM CUTTER				
14	*	403980	BEARING -16MM				
13	*	981290	SPROCKET & HUB #620-10T				
12	2	158667	BUSHING .438 X .750 X 2.094				
11	1	980938	CHAIN GUIDE RT				
10	1	980920	CHAIN GUIDE LT				
6	В	339739	NUT M16-2 FLANGE LOCK				
8	2	339747	HHCS M16-2 X 90 8.8				
7	S	339705	MACHINE BUSHING .625 X 1.25 X 14GA				
6	Ŋ	339697	MACHINE BUSHING .625 X 1.25 X 10GA				
5	1	31634900	GEAR BOX COVER				
4	1	31779200	DECK PLATE REPLACEMENT RIGHT				
σ	1	31780000	DECK PLATE REPLACEMENT LEFT				
2	1	882860	DISKETTE ASSEMBLY TOP #620-10T				
1	1	882852	DISKETTE ASSY BOTTOM #620-10T				
ITEM	QTY	NUMBER	DESCRIPTION				

MATERIAL LIST



SHIM RECOMMENDATION:

- START WITH A LARGE SHIM ON RIGHT (BEVEL DOWN) DISC
- NEXT, USE A LARGE AND A THIN ON LEFT (BEVEL UP) DISC

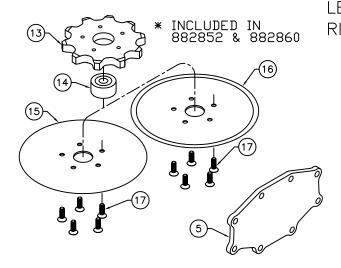
SHIELD AG EQUIPM

DRAWN BY:			DATE:		SCA	SCALE:		
ARRO	KIT	600	JD	>	745101,	6-T00	TH	
TITLE:								

DRAWING NUMBER: J PEINTNER KK-882076 05/11/16 1/8 WEIGHT: 45 LBS.

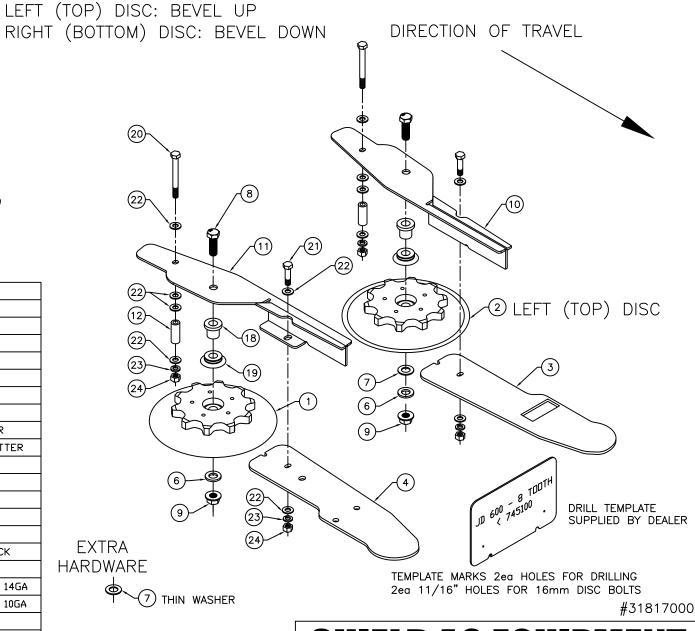
JOHN DEERE 600C SN < 745100, 8-TOOTH DRIVE SPROCKET

DRAWING NUMBER: KK-882118



#616110	#616110 BOX 24 X 10 X 6					
24	4	330035	HEX NUT .375			
23	4	330043	LOCK WASHER .375			
22	12	330894	FLAT WASHER .375			
21	2	335703	HHCS .375 X 1.5			
20	2	331892	HHCS .375 X 3.5			
19	2	400747	DUST SEAL			
18	2	314864	BUSHING 1.25 X 1.088			
17	*	339804	SCREW .313 X .750138" HEAD			
16	*	502732	BLADE 9"x3MM FLAT-TOP CUTTER			
15	*	502724	BLADE 9"x3MM FLAT-BOTTOM CUTTER			
14	*	403980	BEARING -16MM			
13	*	981290	SPROCKET & HUB #620-10T			
12	2	158667	BUSHING .438 X .750 X 2.094			
11	1	980953	CHAIN GUIDE WA RT			
10	1	980946	CHAIN GUIDE WA LT			
9	2	339739	NUT M16-2 CLASS 8 FLANGE LOCK			
8	2	339747	HHCS M16-2 X 90 8.8			
7	2	339705	MACHINE BUSHING .625 X 1.25 X 14GA			
6	2	339697	MACHINE BUSHING .625 X 1.25 X 10GA			
5	1	31634900	GEAR BOX COVER			
4	1	31788300	DECK PLATE REPLACEMENT RIGHT			
3	1	31787500	DECK PLATE REPLACEMENT LEFT			
2	1	882860	DISKETTE ASSEMBLY TOP #620-10T			
1	1	882852	DISKETTE ASSY BOTTOM #620-10T			
ITEM	QTY	NUMBER	DESCRIPTION			

MATERIAL LIST

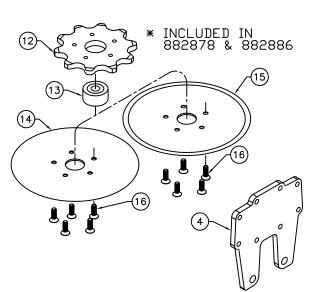


SHIM RECOMMENDATION:

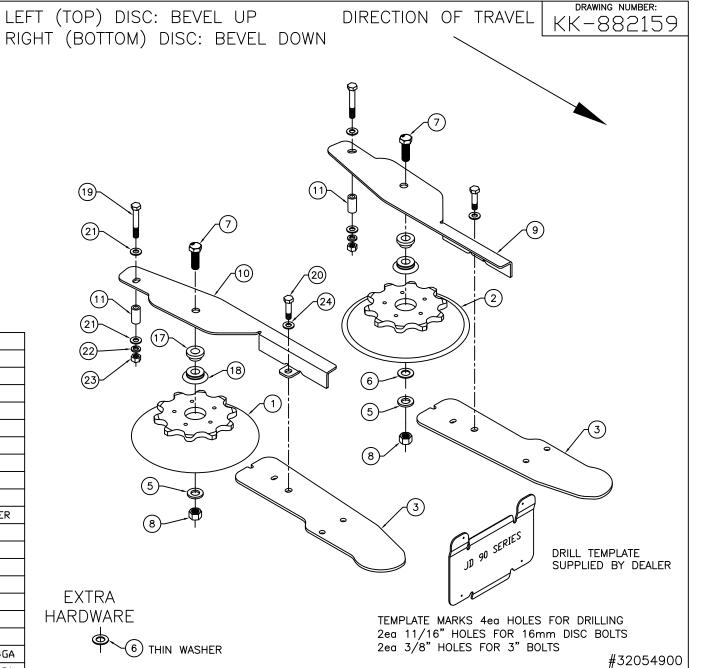
- START WITH A LARGE SHIM
 ON RIGHT (BEVEL DOWN) DISC
- NEXT, USE A LARGE AND A THIN ON LEFT (BEVEL UP) DISC

SHIELD AG EQUIPMENT

TITLE:									
ARRO KIT 600	JD < 745	100, 8-TOO	TH	В					
DRAWN BY: J Peintner	DATE:	SCALE:	DRAWING NUME	ER:					
WEIGHT: 45 LBS.	05-11-16	1/8	KK-882	118					



			~
#616110	B□X	24 X 10 X 6	5
24	2	×	FLAT WASHER .4375
23	2	330035	HEX NUT .375
22	2	330043	LOCK WASHER .375
21	4	330894	FLAT WASHER .375
20	2	339564	HHCS M12 X 1.75 X 35-10.9
19	2	×	HHCS .375 X 3
18	2	400747	DUST SEAL
17	2	314856	BUSHING 1.25 X .588
16	*	339804	SCREW .313 X .750138" HEAD
15	*	502732	BLADE 9"x3MM FLAT-TOP CUTTER
14	*	502724	BLADE 9"x3MM FLAT-BOTTOM CUTTER
13	*	403980	BEARING -16MM
12	*	981274	SPROCKET & HUB #555-10T
11	2	158675	BUSHING .438 X .750 X 1.563
10	1	32053100	CHAIN GUIDE RT
9	1	32052300	CHAIN GUIDE LT
8	2	339721	LOCK NUT M16-2 CLASS 8
7	2	339747	HHCS M16-2 X 90 8.8
6	2	339705	MACHINE BUSHING .625 X 1.25 X 14GA
5	2	339697	MACHINE BUSHING .625 X 1.25 X 10GA
4	1	32211500	GEAR BOX COVER
3	2	31788300	DECK PLATE REPLACEMENT
2	1	882886	DISKETTE ASSEMBLY TOP #555-10T
1	1	882878	DISKETTE ASSEMBLY BOTTOM #555-10T
ITEM	QTY	NUMBER	DESCRIPTION
		MA	TERIAL LIST

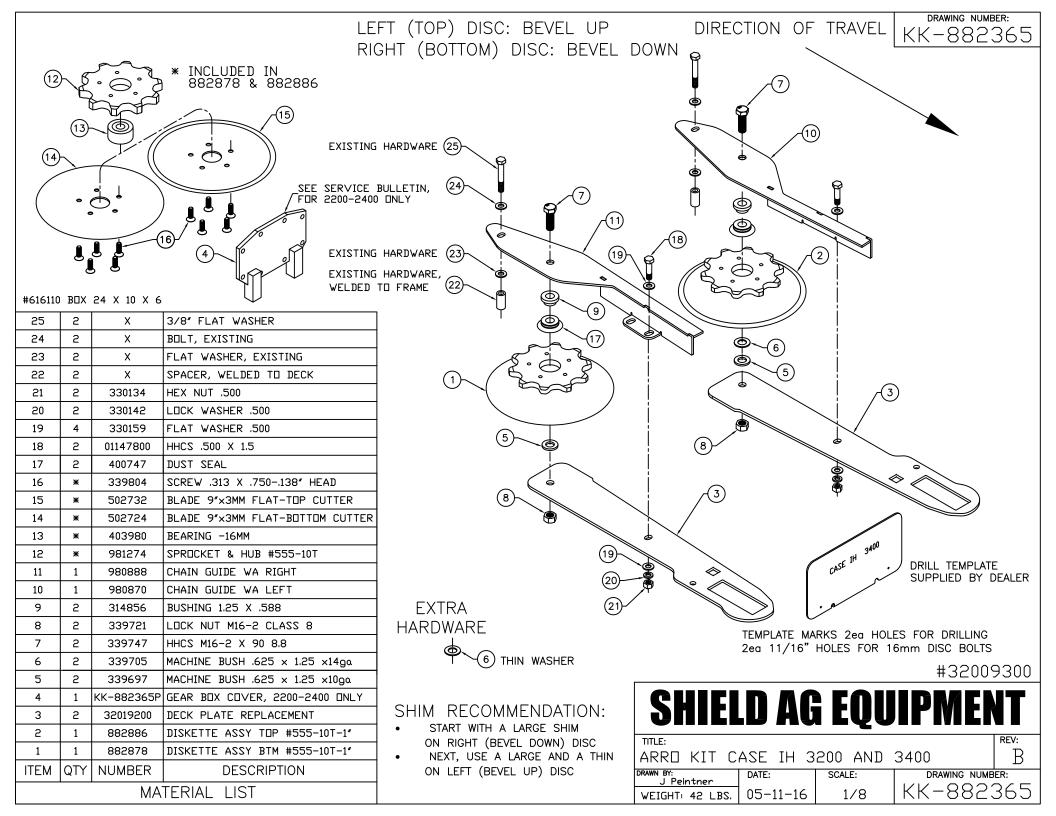


SHIM RECOMMENDATION:

- START WITH A LARGE SHIM
 ON RIGHT (BEVEL DOWN) DISC
- NEXT, USE A LARGE AND A THIN
 ON LEFT (BEVEL UP) DISC

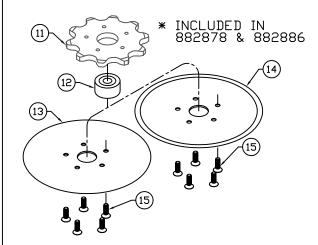
SHIELD AG EQUIPMENT

G 111				- Le		
TITLE:						REV:
ARRO KI	T JD	90	SERIES			В
DRAWN BY: J Peintner		DATE:		SCALE:	DRAWING NUMBER:	
WEIGHT: 45 LBS.		1 05	-11-16	1/8	KK-8821	159



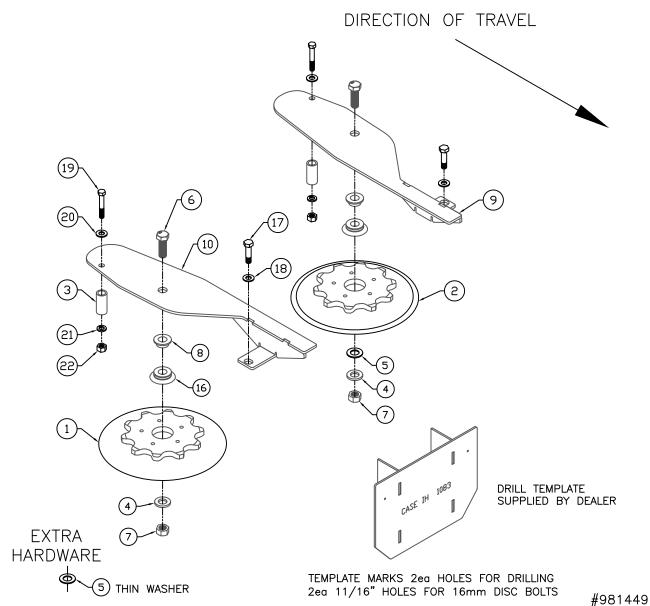
LEFT (TOP) DISC: BEVEL UP

RIGHT (BOTTOM) DISC: BEVEL DOWN



#616128 BOX 30 X 12 X 6

		00 N 12 N	-
**	1	883173	BOLT SACK
22	2	330035	** HEX NUT .375
21	2	330043	** LOCK WASHER .375
20	4	330894	** FLAT WASHER .375
19	2	331884	** HHCS .375 X 2.500
18	2	330159	** FLAT WASHER .500
17	2	01029800	** HHCS .500 X 1
16	2	400747	** DUST SEAL
15	*	339804	SCREW .313 X .750138" HEAD
14	*	502732	BLADE 9"x3MM FLAT-TOP CUTTER
13	*	502724	BLADE 9"x3MM FLAT-BOTTOM CUTTER
12	*	403998	BEARING -16MM
11	*	981274	SPROCKET & HUB #555-10T
10	1	981431	CHAIN GUIDE WA RIGHT
9	1	981423	CHAIN GUIDE WA LEFT
8	2	314856	** BUSHING 1.25 X .588
7	2	339721	** LOCK NUT M16-2 CLASS 8
6	2	339747	** HHCS M16-2 X 90 8.8
5	2	339705	** MACHINE BUSH .625 × 1.25 ×14ga
4	2	339697	** MACHINE BUSH .625 × 1.25 ×10ga
3	2	158717	** BUSHING .438 X .750 X 1.625
2	1	882886	DISKETTE ASSY TOP #555-10T-1"
1	1	882878	DISKETTE ASSY BTM #555-10T-1"
ITEM	QTY	NUMBER	DESCRIPTION
		MA	TERIAL LIST



SHIM RECOMMENDATION:

- START WITH A LARGE SHIM
 ON RIGHT (BEVEL DOWN) DISC
- NEXT, USE A LARGE AND A THIN
 ON LEFT (BEVEL UP) DISC

SHIELD AG EQUIPMENT

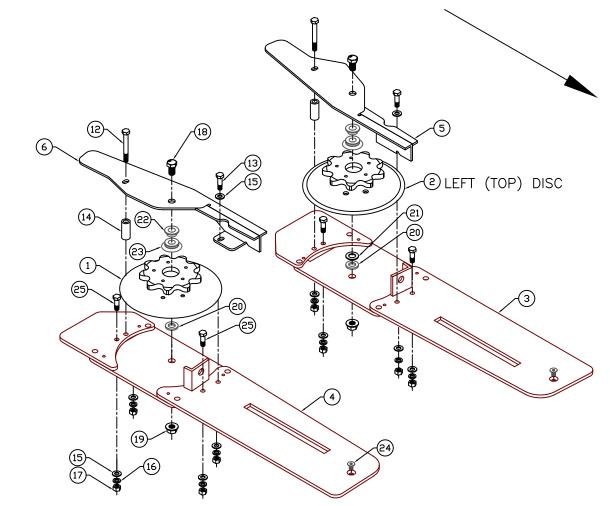
UIIILI	L Ny	LŲU					
TITLE:				REV:			
ARRO KIT CASE IH 1083							
DRAWN BY: J PEINTNER	DATE:	SCALE:	DRAWING NUMB	ER:			
WEIGHT: LBS.	04/02/18	3/32	KK-883	165			

INCLUDED IN 882134 & 882142

LEFT (TOP) DISC: BEVEL UP

RIGHT (BOTTOM) DISC: BEVEL DOWN

DIRECTION OF TRAVEL



WEIGHT: 45 LBS. 03/27/17

#616128 BOX 30 X 12 X 6

"OIOIL	0 10,	· OO A IL A	
25	2	01017300	HHCS .375 X 1.00
24	2	339788	SCREW .375 X 1 FH SDCKET
23	2	400747	DUST SEAL
22	2	314864	BUSHING 1.25 X 1.088
21	2	339705	MACHINE BUSH .625 X 1.25 X 14GA
20	2	339697	MACHINE BUSH .625 X 1.25 X 10GA
19	2	339739	NUT M16-2 FLANGE LOCK
18	2	339747	HHCS M16-2 X 90 8.8
17	8	330035	HEX NUT .375
16	8	330043	LOCK WASHER .375
15	10	330894	FLAT WASHER .375
14	2	158766	BUSHING .750 X .156 X 1.75
13	2	01158500	HHCS .375 X 1.25
12	2	330886	HHCS .375 X 3.00
11	2	339804	SCREW .313 X .750138" HEAD
10	1	502732	BLADE 9"X3MM FLAT-TOP CUTTER
9	1	502724	BLADE 9"X3MM FLAT-BOTTOM CUTTER
8	2	403998	BEARING -16MM
7	2	980334	SPROCKET / HUB #555-9T-1.438"
6	2	981498	CHAIN GUIDE RIGHT
5	1	981480	CHAIN GUIDE LEFT
4	1	981464	DECK PLATE REPLACEMENT RIGHT
3	1	981472	DECK PLATE REPLACEMENT LEFT
2	1	882142	DISKETTE TOP #555 X 9T-1.438"
1	1	882134	DISKETTE BTM #555 X 9T-1.438"
ITEM	QTY	NUMBER	DESCRIPTION
		MA	TERIAL LIST

EXTRA HARDWARE



SHIM RECOMMENDATION:

- START WITH A LARGE SHIM ON RIGHT (BEVEL DOWN) DISC
- NEXT, USE A LARGE AND A THIN ON LEFT (BEVEL UP) DISC

SHIELD AG EQUIPMENT

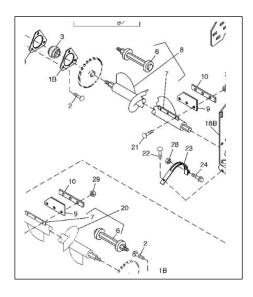
TITLE: ARRO KIT AGCO DRAWING NUMBER: DATE: SCALE: J PEINTNER KK-882670

1/8

ARRO® / ShieldAg Service Bulletin 9/18/2018 V20180918

Subject: JD 1293 cornhead reverse flighting retrofit to improve feeding of Sorghum (Milo)

To improve feeding after ARRO[®] conversion of John Deere 1293 cornheads built from 1989 to 1997, prior to Serial Number – 670751, the cornhead auger should be retrofitted with these two parts:



H206302 LH Reverse Flight

JD List price \$94.90, item 8 shown here

H206301 RH Reverse Flight

JD List price \$94.90, item 20 shown here

The above part numbers, 1 of each hand, should be ordered from John Deere dealers and retro-fitted by welding them onto the center auger tube of John Deere 1293 cornheads (prior to serial number 670751).

The reverse flight became standard equipment for all 1293 cornheads starting with SN 670751 (1997)

Early model 1293 cornheads have the flat straps supporting a rubber center flap (sometimes called a beater-flap) that was supposed to improve feeding of fluffy dry crop into the feederhouse. We have found that adding the reverse flighting to these cornheads improves center feeding in many conditions.

This retrofit applies to any of these 1293 model years (and serial numbers):

1989 starts with 630xxx1990 starts with 635xxx1991 starts with 640xxx1992 starts with 645xxx1993 starts with 650xxx1994 starts with 655xxx

1995 starts with 660xxx 1996 starts with 665xxx

1997 starts with 670xxx Serial numbers starting with SN 670751 have reverse center flight

Installed from the factory

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ARRO® is a patent-pending product line of Kopper Kutter LLC, Cimarron, KS

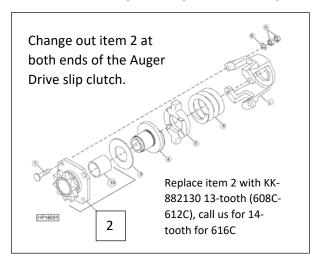
Distributed by ShieldAg of Hutchinson, KS 800-798-1968 or go online at shieldag.com

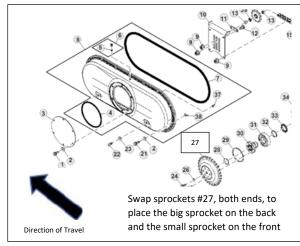
ARRO® / ShieldAg Service Bulletin 12/8/2018 V20181208, pg 1

Subject: JD 600C-series auger/gathering chain speed optimization

To improve feeding and increase ground speed after ARRO® conversion of John Deere 600C-series corn heads, we recommend that that the auger and row units (gathering chains) are sped up about 20-30% by changing out the auger drive sprockets that are part of the auger drive slip clutches at the ends of the backshafts (inboard of the end panels), and by swapping the drive sprockets (#27 in the picture on the right, below) inside the oil bath end cases to install the big sprocket on the back and the small sprocket on the front; refer to Deere 600C-series corn head parts manuals. This change will speed up the row units by about 20%. Be careful and don't lose the O-ring under the big sprocket on back, or the O-ring under the center bolt attaching the back sprocket to the hex shaft.

For 608C and 612C corn heads, we recommend speeding up the cross auger 30%. Shield offers a 13-tooth slip clutch drive sprocket part number KK-882130 to replace Deere OEM 10-tooth sprocket part number AH222303. For 616C, please call us to get a 14-tooth sprocket made up. 616C take in enough material that a 40% increase in cross auger speed is warranted. Auger drive slip clutch sprockets are NOT included in the kits or in the kit prices, purchase separately. Requires two per corn head.





Page 2 is a basic set of instructions for these two drive speed modifications

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Distributed by ShieldAg of Hutchinson, KS

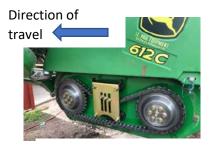
800-798-1968 or go online at shieldag.com

ARRO® / ShieldAg Service Bulletin 12/8/2018 V20181208, pg 2

Subject: JD 600C-series auger/gathering chain speed optimization process photos







The procedure includes swapping sprockets to install the BIG sprocket on the back and the small sprocket on front

Note: These instructions apply to both sides of the 600C headers

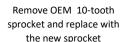
- Remove the plastic cover bolts at the outboard ends of the back shafts
- Remove all of the outer bolts from the aluminum shaft-cover holders
- Do not remove the bolts inside the aluminum covers, but loosen them, for all of the hangers supporting the back shafts
- Remove the oil bath covers (you will need a drain pan)
- Remove all of the bolts from the outboard sprockets and loosen the #80 chain tensioner—don't lose the Big O-ring inside the back sprocket or the O-ring on the center bolt





Remove the inboard PTO shaft cover to expose the steel shaft, that will help you pull the hex shaft out of the outboard assembly

With a helper, slide the hex shaft completely out of the slip clutch—you may have to tap on the bearing supports with a hammer to get them to free up





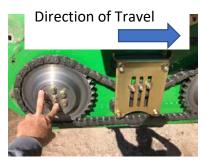


When re-installing hex shaft, make sure inboard auger drive chain does not rub on bottom below the tensioner

Slide the backshaft through the slip clutch

Swap the outboard sprockets to place the BIG sprocket on back and the small sprocket on front-make sure the two Orings are used under the back sprocket and the center bolt

Re-install hexshaft into the back sprocket



Tighten all bolts to proper torque and re-tighten the chain

All other re-assembly procedures are the reverse of disassembly. Dealer combine service managers understand this total procedure and we will defer to the experts for any other details not listed here.

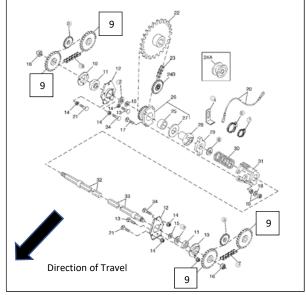
ARRO® is protected under US Patent # 10,123,480 and is a product line of Kopper Kutter LLC, Cimarron, KS

ARRO® / ShieldAg Service Bulletin 12/7/2018 V20181207

Subject: JD 1293 & 1243 cornhead auger/gathering chain speed optimization

To improve feeding and potentially increase ground speed after ARRO® conversion of John Deere 1243 & 1293 cornheads, we recommend that that the auger and row units (gathering chains) are sped up about 29-30% by changing out the sprockets inside the oil bath end cases to install the big sprocket on the back and the small sprocket on the front; refer to Deere 1243 Corn Head Parts Catalog PC1223 and Deere 1293 Corn Head Parts Catalog PC2404. Sometimes this can be done by swapping existing sprockets, and for some headers the customer may need to buy two sprockets of the same size to get the optimum ratio. All required sprockets are available from Deere. The parts person will need to know if the header has a 1-1/4" or 1-1/8" hex drive shaft. Here is a table of recommended BACK and FRONT sprockets, from our experience:

	Optimum from our experier								CE
23	18	1.27:1	23	17	1.35:1	22	17	1.29:1	
BACK	FRONT	RATIO	BACK	FRONT	RATIO	BACK	FRONT	RATIO	



This picture from Deere PC2404 (1293) shows the end sprockets (item 9) to change for auger/gathering chain speed up.

NOTE: 843 and 893 corn heads may, or may not, require this speed up process. That depends on the combine being used and farmer preference.

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ARRO Service Bulletin 10/11/2018 V20181011

Subject: Clarify Instructions To Increase Auger RPM, CaseIH 3200-3400-Series

Stock auger sprocket assembly orientation shown below.

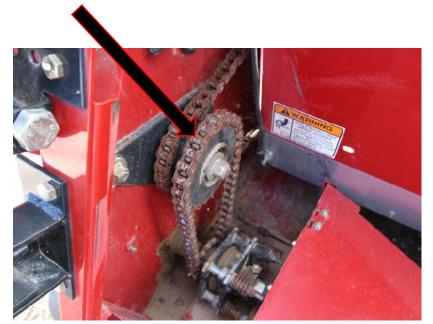
Slower auger speed shown.

Big sprocket is on the inside, away from the mounting flange.

To properly match auger speed to feeder house speed, flip this sprocket assembly. You will gain 150 auger RPM by doing this.

Will require added chain links or new chains.

Big sprocket is on the outside after the changeover, nearest to the mounting flange.

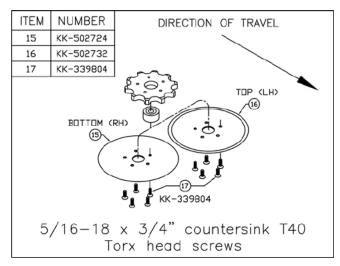




ARRO® Service Bulletin 10/01/2020 V20201001

SUBJECT: Product improvement, ARRO® discs and screws Supercedes ARRO® Service Bulletin 10/03/2018 V20181003

As of October 1st, 2020, we will furnish 5ea 5/16-18 T40 Torx flathead screws with each spare disc ordered. The two disc part numbers KK-502724 and KK-502732 are the same for all models.



Item 15 Bottom Cutter Disc, right hand KK-502724 will now include 5ea KK-339804 5/16-18 X ¾", 100-degree T40 Torx flat head screw

AND

Item 16 Top Cutter Disc, left hand KK-502732 will now include 5ea KK-339804 5/16-18 X ¾", 100-degree T40 Torx flat head screw

NOTE: For removal, old screws may have to be lightly heated or struck with a ballpeen hammer to break the Loctite loose.

A product improvement, as a running change, has been made to improve the **disc-to-sprocket** joint reliability and serviceability. The (5) screws per disc are now 100-degree countersink, flat head #40 Torx head and are pre-coated with Locktite. The new discs and screws will also retrofit to all previous drive sprocket hubs <u>provided that the hub screw hole lead-in chamfers are reworked to about 3/8 inch diameter</u> at the joint surface as shown in the photos below. Torque screws to 21 lb-feet.

Starting October 1st 2020, orders for discs will include new screws in the kit.

IMPORTANT NOTE: When replacing ARRO cutting discs, make SURE that the new 100-degree screws will not "bottom out" on the ARRO sprockets. All sprocket threads on ARRO units sold before July 1, 2018 should be lightly reworked by using a 3/8" drill bit to increase the lead-in thread chamfer by about 1/32" of chamfer depth, or to about 3/8" diameter, as shown in the right hand photo. All replacement discs for units sold after July 1, 2018 incorporate the new screws and sprockets will not need to be reworked. A copy of this bulletin will go out with service parts orders.

REWORK AS SHOWN, USE 3/8" DRILL BIT







ARRO® is patent protected by Kopper Kutter LLC, Cimarron, KS, US Patent 10,123,480

And distributed by ShieldAg Equipment, Hutchinson, KS 800-798-1968 www.shieldag.com

ARRO® Service Bulletin 8/28/17 V20171004

SUBJECT: Installing ARRO Kit KK-882365 for CASEIH 3200-3400 on CaseIH and New Holland 2200- & 2400-series corn heads

Follow the CaseIH ARRO installation instructions with THREE additional steps required:

 CaseIH 2200- & 2400-series will require removal of stock rolls and stock roll housing (binoculars) and ARRO kit will include cover plate KK-882365P. If a cover plate was not included with your kit, please contact ShieldAg.

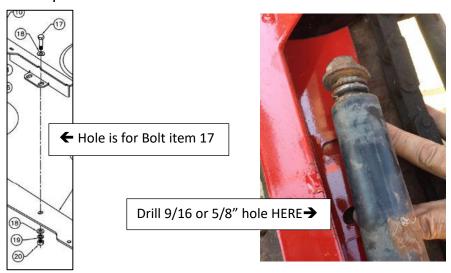


2. After marking and drilling the 2ea 16mm (or 11/16" dia) cutting disc holes (see page 7 of the CaseIH installation guide), use a grinder to clean up around the hole on the bottom side if it is near a weld to allow the nuts to sit flush.

You may have to grind away part of a weld near the drilled hole, shown here.



3. After a test installation of the ARRO deck plates (item 3 of the parts list) and chain guides **shown on page 11 of the installation guide**, use the ARRO deck plates as a template to drill a 9/16" or 5/8" hole through each header deck for the $\frac{1}{2}$ " bolts number 17 shown in the parts list.



ARRO® is patent pending by Kopper Kutter LLC, Cimarron, KS

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