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MAINTENANCE & SERVICE

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PROPER MAINTENANCE & SERVICE

Proper maintenance and service of the drill will save time and increase the life of the drill.
Drill Model OTG-7522 is driven from both ends of the machine.

1) SEED BOXES AND LID HINGES

Check seed box lid hinges frequently for accumulation of dirt and debris. Clean as needed and apply an LPS silicone lubricant, WD-40, or any equivalent lubricant to the hinges to keep them operating freely. Replacement brass hinge pins (part #1038HP) and two 1/16" x 1/2" cotter pins (part #CP116-.5) are available.

The box integrity including welds and bolted assemblies must be inspected and maintained. All seed, debris (such as seed sacks), and unused material must be removed before transport and storage.

DO NOT use any Truax equipment with the lids of the seed boxes open.

2) LARGE (FLUFFY) SEED BOX

Problems caused by shaft interference between the picker wheel shaft (part #2003) and the transitions (part#1033 and #10333) can be repaired by loosening bolts (part #B38-.750) that hold the box to the end plates and slightly rotate the box. The bearings holding the picker wheel shaft can also be loosened and the shaft can be moved slightly. The center bearing of the picker wheel shaft is held to the fluffy box bottom by a bearing support bracket (part #10316) that can be loosened and moved for increased shaft clearance. Also, each transition can be moved in either direction.

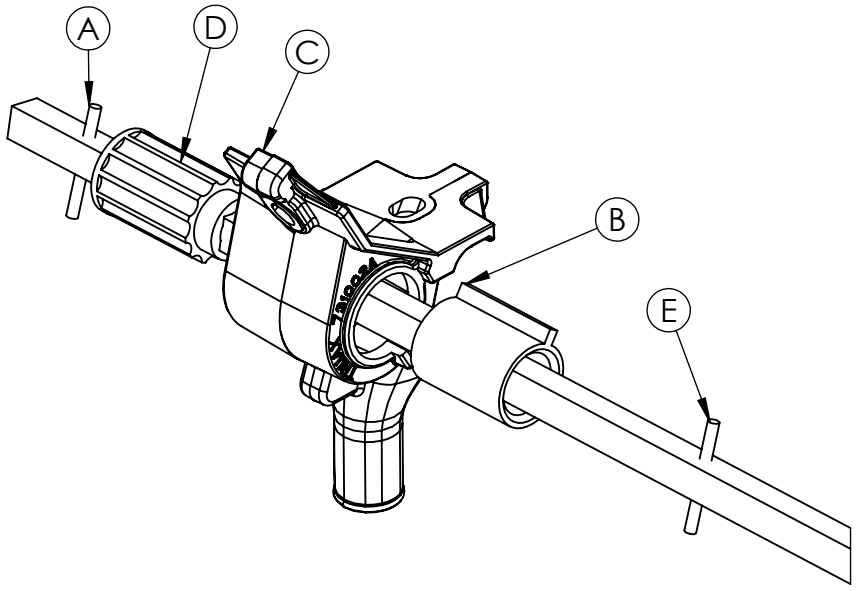
When removing or adjusting the picker wheels, (part #2002) remove the set screws entirely, as they tend to screw themselves in and tighten up again during shaft removal. Use a plastic or lead hammer when removing the shafts from the drill so the shaft ends do not become marred.

One of the most common issues is that rocks, garbage, empty seed bags, tools, bolts & nuts, and other debris get thrown into the box. This debris gets caught on the picker shaft and causes it to twist, therefore damaging it. KEEP seed and box clear of debris.

The removal of the fluffy seed box shaft is best accomplished by using a cordless "saws-all" (hacksaw) and cutting the shaft in several pieces, next to each bearing mount, and removing the pieces for further disassembly. Secure the shaft pieces in a vice before sawing beside each picker wheel. After inspection of the individual picker wheels for damage, remove the set screws before beginning reassembly. Take note of the picker wheel rotation so that they can be reinstalled in a similar manner. The picker wheel hub, or boss will always be to the right when standing at the rear of the drill looking forward. After installing new shaft, attach sprocket and align it with its drive sprocket, followed by tightening the bearing set screws. Next, align the picker wheels in the slot in the bottom of the seed box and tighten their set screws. Lastly, reinstall transitions, seed hoses, and drive chains.

3) SMALL (LEGUME) SEED BOX

Irregular seeding rates can be corrected by adjusting the individual cups. After loosening the cup mounting bolts, it is possible to move each cup about 1/8" and thereby change the cup output in relation to the others. If a plastic seed cup is broken, a field repair can be made with "super glue" (if all the parts can be found). All plastic seed tubes should be removed annually and cleaned thoroughly.

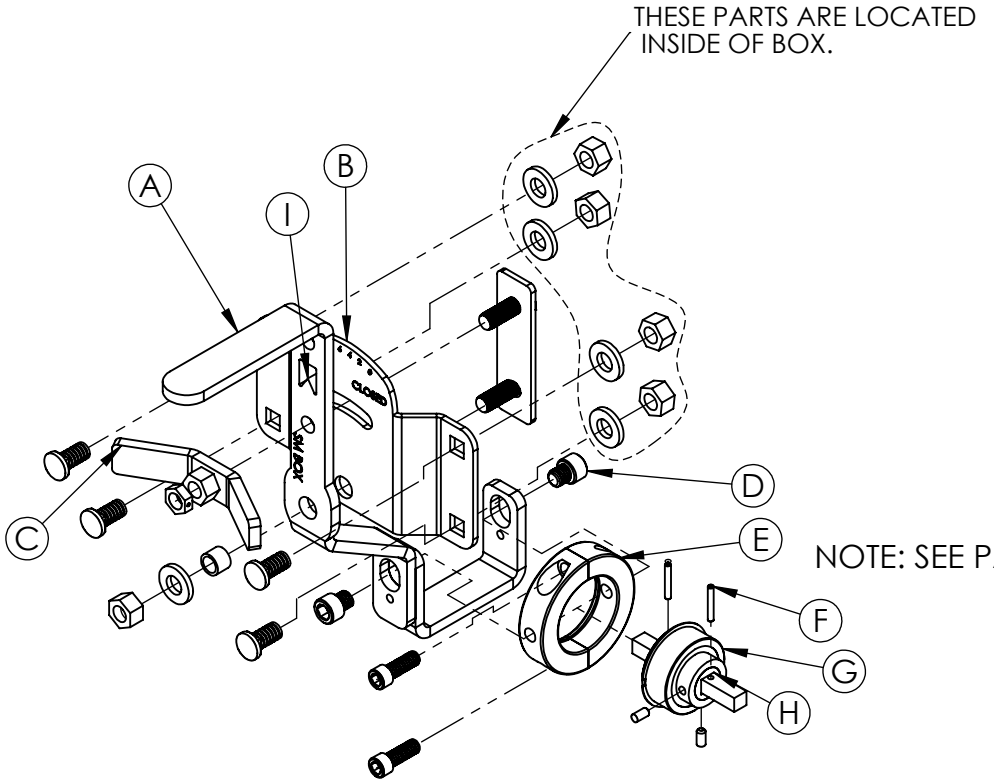


A	Roll Pin
B	Cut Off
C	Seed Cup
D	Fluted Roll
E	Roll Pin

Fig. 40-1

NOTE: SEE PAGE 90-24 FOR PART #s'

4) SMALL BOX SHIFTER



NOTE: SEE PAGE 90-26 FOR PART #s'

Fig. 40-2

A	Handle	F	Roll Pin
B	Mount	G	Bearing
C	Wing Nut	H	Sleeve-Square
D	Socket Head Cap Screw	I	Arrow
E	Collar		

The shifter assembly controls the output from the small seed box by changing the amount of fluted feed rolls that are in the metering cups. By shifting the handle (A) left more of the flutes enter in to the cups and therefore feed more seed. As the arrow (I) of the handle (A) moves across the hash marks on the mount bracket (B), the seeding rate changes. Each hash mark represents about 1/4" of movement in the position of the seed box metering shaft. Moving the handle left increases output and moving it right decreases output.

This is for the small box only. When moving the cool season shifter handle left, it decreases the output and moving it right increases the output.

5) COOL SEASON SEED BOX

On a daily basis when planting dense seed that tends to settle and compact, before starting to drill, it is a good idea to turn the feed shaft with a wrench in the direction it normally turns. If it turns hard, remove the drive chain to the box and apply a dry silicone based lubricant to each cup while turning feed shaft with a wrench.

While moving the shifter to a new position when the box is filled with seed, it may be necessary to turn or wiggle the feed shaft with a 5/8" wrench while moving the lever.

If the feed shaft continues to "walk" after checking the above items, then check each seed cup. Loosen the two retaining bolts on each cup and tap (lightly) with a plastic hammer to check the alignment. Retighten and proceed to the next one.

Star washer inside seed cup is removable.

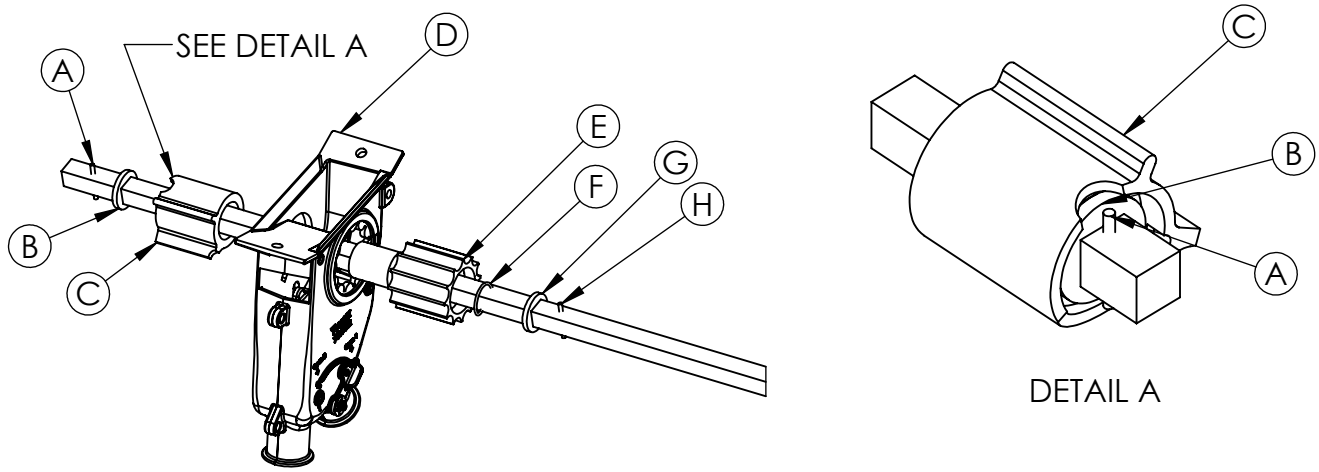
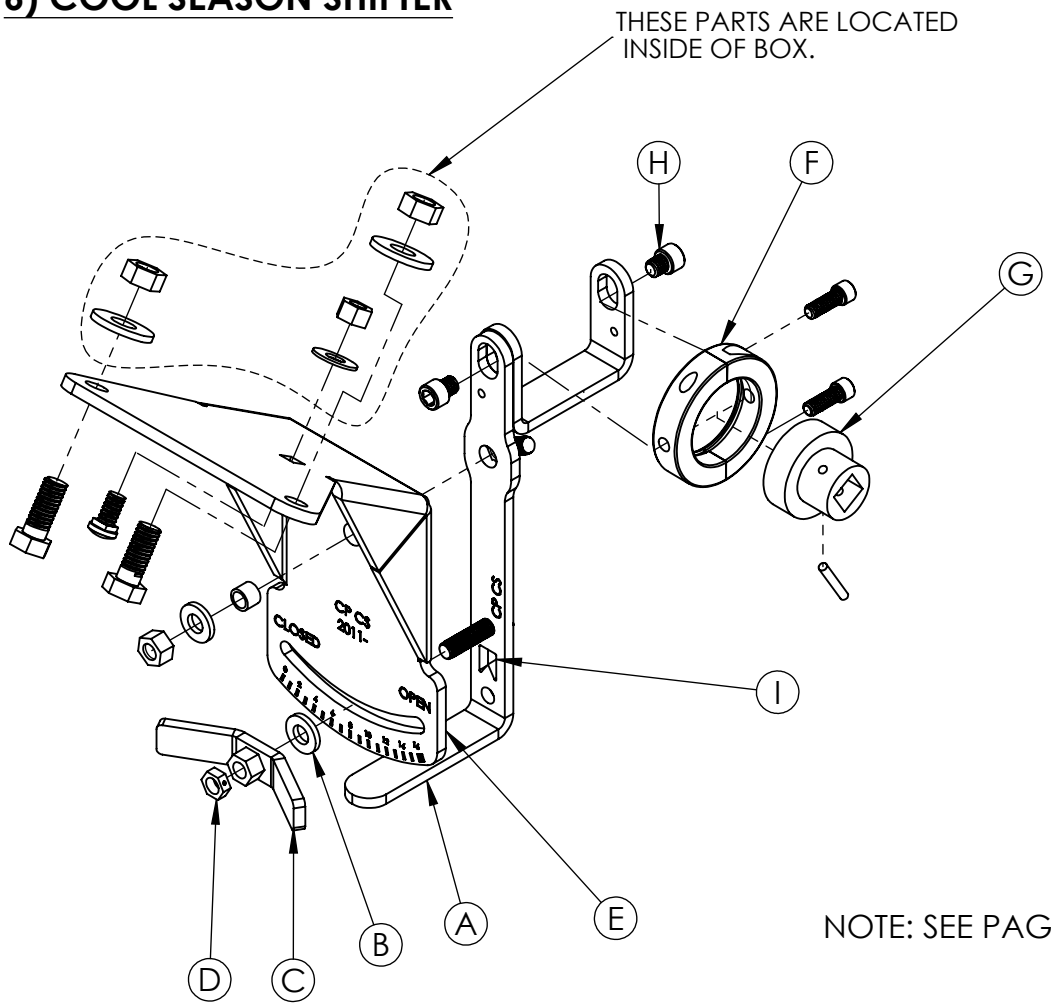


Fig. 40-3

NOTE: SEE PAGE 90-28 FOR PART #s'

A	Roll Pin	E	Fluted Roll
B	Washer	F	Spring
C	Cut Off	G	Washer
D	Seed Cup	H	Roll Pin

6) COOL SEASON SHIFTER



NOTE: SEE PAGE 90-31 FOR PART #s'

Fig. 40-4

A	Handle	F	Collar
B	Washer-Plastic	G	Bearing
C	Wing Nut	H	Socket Head Cap Screw
D	Nut	I	Arrow
E	Mount		

Moving the handle left decreases the output and moving it right increases the output.

7) COOL SEASON FEED CUP

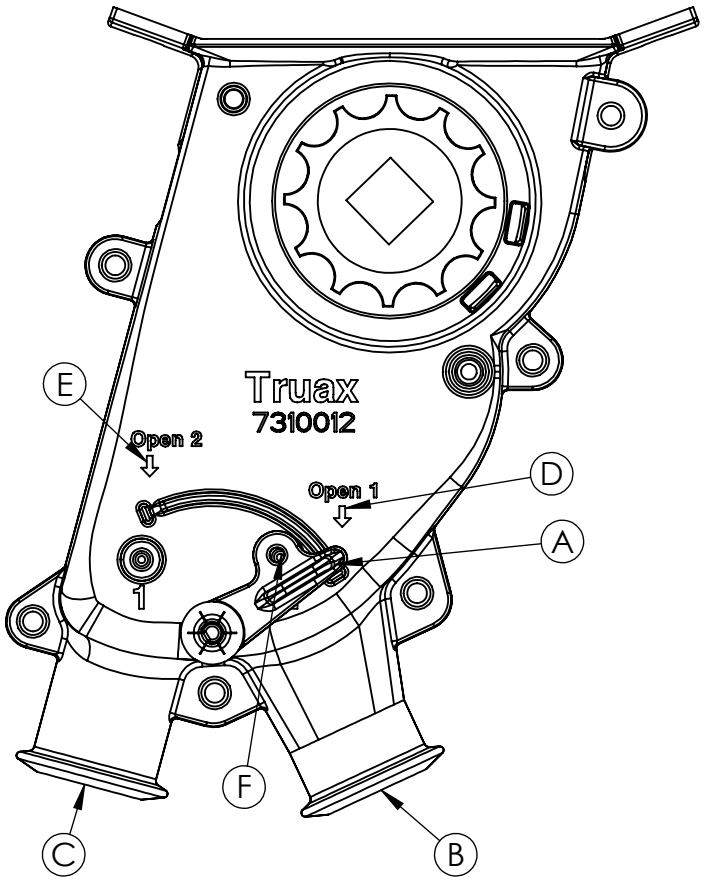


Fig.40-5

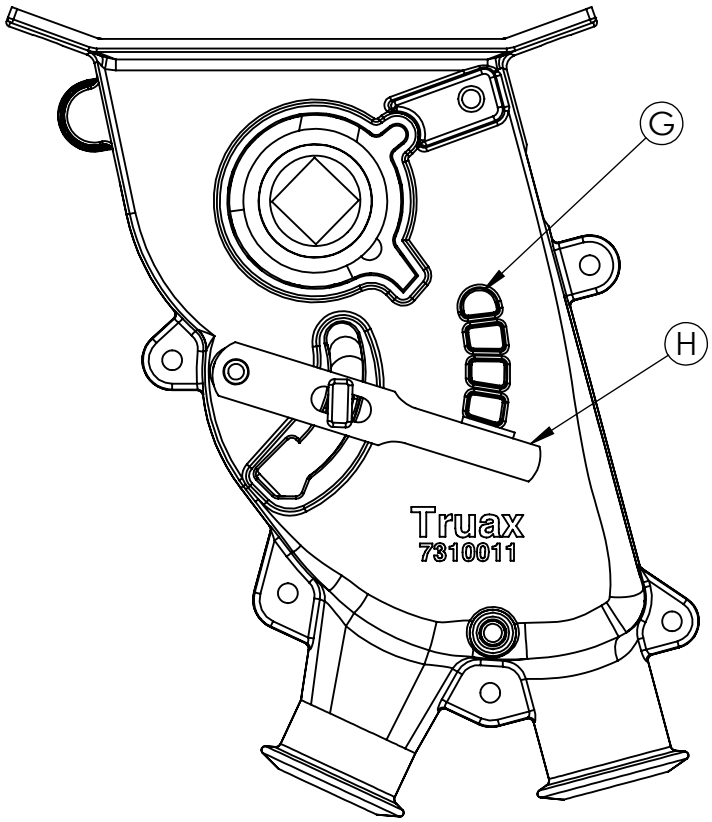


Fig. 40-6

A	Lever	E	Open Position 2
B	Spout 1	F	Screw
C	Spout 2	G	Lowest Position
D	Open Position 1	H	Lever

The dual spout meter cups are designed to be used on different models of Truax equipment and help provide as straight of a line seed drop from seed boxes to planters as possible. Depending on planter configuration, different spouts may be used on the same drill.

On the right side of the seed cup, from rear of drill, the small plastic lever (A) has a retention screw (F) holding the lever to the "Open 1" position which will direct the seed to spout 2 (C). If you want seed directed to spout 1 (B) then move retention screw to "Open 2" position.

The flow of seed as measured by the engagement of the fluted feed roll is controlled, in part, by the position of the metering lever/gate (F). If the metering lever/gate is in the lowest position (G), then all seed and material is free to fall out of the cup. The drill should be left in this, the clean out position, at the end of the season, when in storage. As the lever is moved up, the flow of seed is restricted and controlled; however, care must be exercised so that seeds such as soybeans don't get scratched or cracked.

7) COOL SEASON FEED CUP

(CONTINUED)

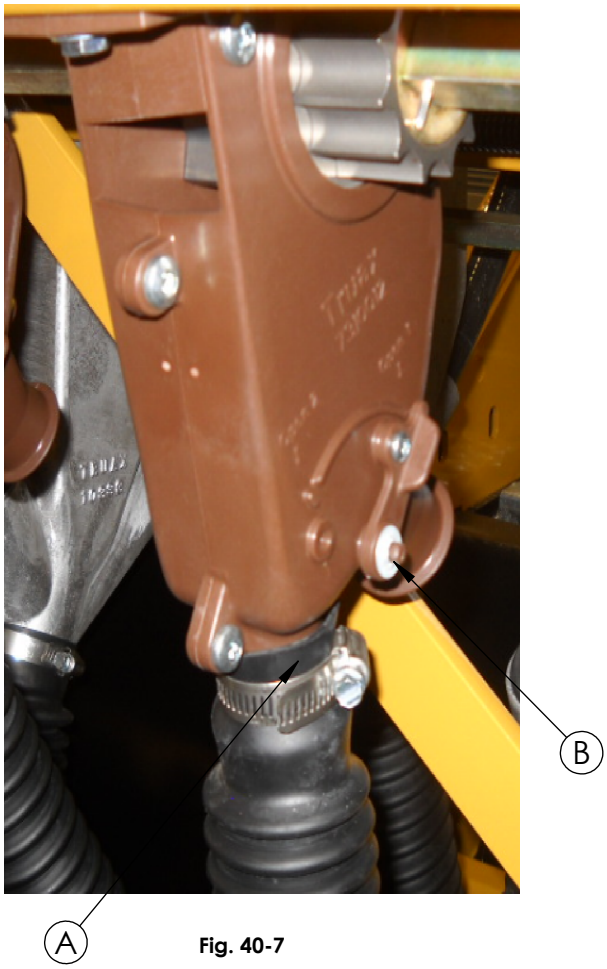


Fig. 40-7

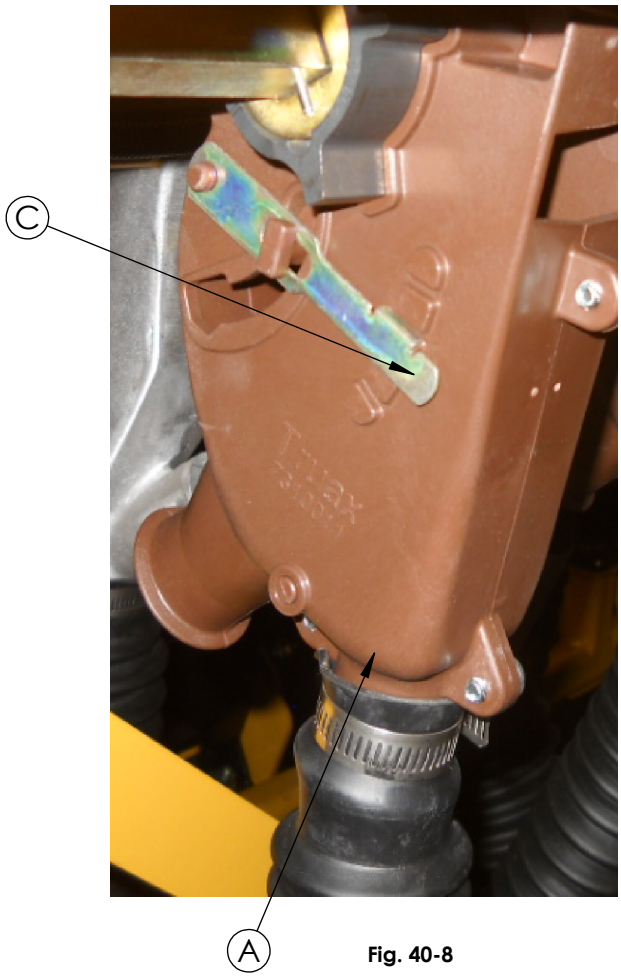


Fig. 40-8

A	Seed Delivery Tube
B	Plastic Lever
C	Metal Lever/Gate

The choice of metering spout is made at time of drill assembly. The seed delivery tubes must be as straight as possible.

7) COOL SEASON FEED CUP

(CONTINUED)

SERVICING THE COOL SEASON FLUTED FEED CUPS

It may be necessary to service the feed cups whenever the shaft becomes difficult to shift, the rolling torque is too high, or when one or more of the cups have been removed.

1) Open the feed gate levers.

2) Start at the end of the drill near the shifter lever and loosen the bolts holding the seed cups to the bottom of the box.

3) Move the seed cup until the end of the fluted feed roll is flush with the inside surface of the seed retainer ring on the lower radius of the seed reservoir.

4) Reset all the seed cups in the same manner (beginning with the cups next to the shifter) working alternately in both directions.

5) Tighten the bolts on each seed cup as soon as resetting is complete.

Note: The cup retaining bolts require a washer (part #W14) between the bolt head and the seed cup.

6) Recheck the adjustment by moving the feed shaft shifter back and forth. Recheck all fluted feed rolls to insure that they are flush at the lower radius of each seed cup.

7) Close the feed gates to the desired setting, making sure that all gates are in identical positions.

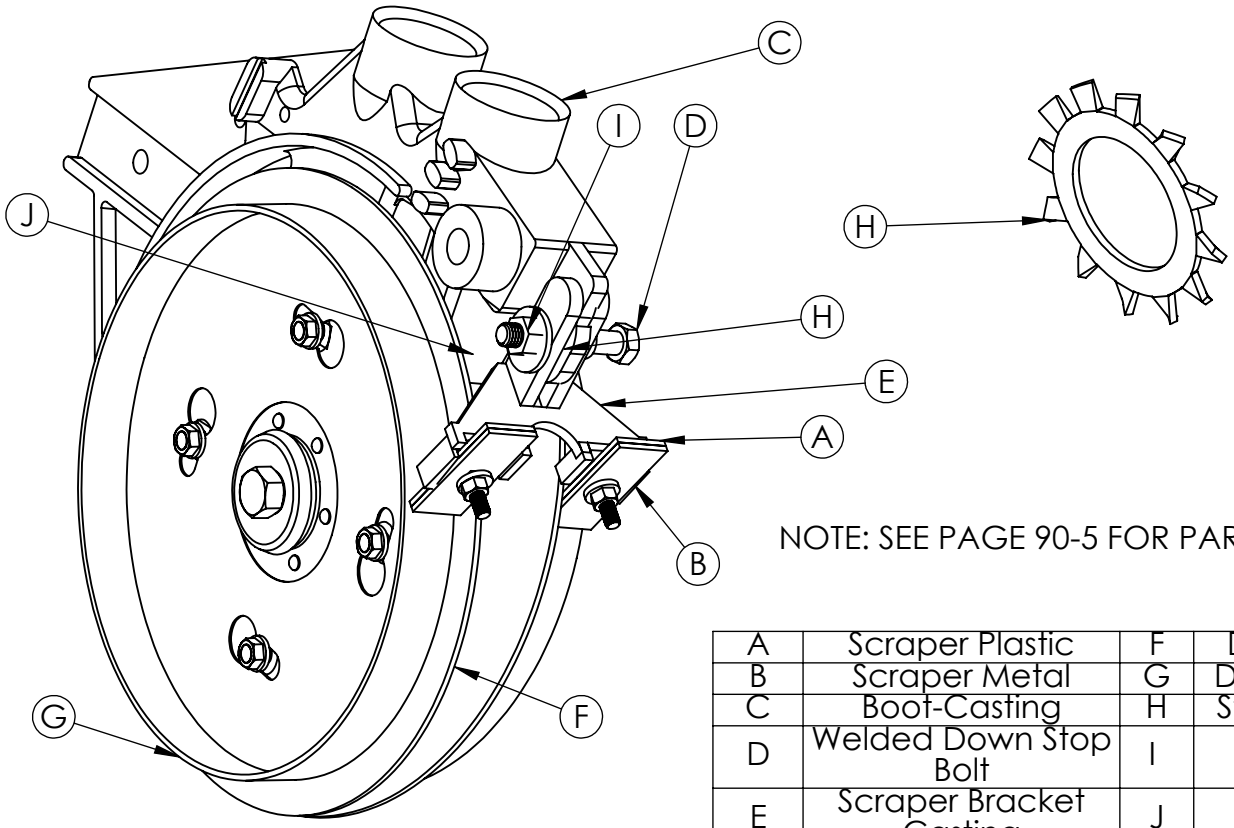
1) PLANTER INFORMATION

Depth of seed placement and soil contact of the planted seeds are the result of the position and functionally of the planters' mud scrapers. Truax drills utilize three individual mud scrapers on all opener assemblies and their care and maintenance will be reflected in the position of the seed in to the soil envelop. Scrapers should be checked daily or every 100 acres for wear and alignment.

DEPTH BAND SIZE	EXPOSED BLADE EDGE	PLANTING DEPTH	SCRAPPER ASSEMBLY #	RIGHT-HAND SCRAPER #	LEFT-HAND SCRAPER #
9-½ (#1097F)	2"	1"-(1-1/2)"	10845FA	10845F-RH	10845F-LH
10-½ (#1097D)	1-1/2"	5/8"-3/4"	10845DA	10845D-RH	10845D-LH
11-½ (#1097)	1"	1/2"-5/8"	10845A	10845-RH	10845-LH
12 (#1097C)	3/4"	3/8"-1/2"	10845CA	10845C-RH	10845C-LH
12-½ (#1097A)	1/2"	1/8"-1/4"	10845BA	10845B-RH	10845B-LH

OTG drills are manufactured with 12" depth bands as a standard.

2) REAR SCRAPER ASSEMBLY



NOTE: SEE PAGE 90-5 FOR PART #s'

A	Scraper Plastic	F	Disc Blade
B	Scraper Metal	G	Depth Band
C	Boot-Casting	H	Star Washer
D	Welded Down Stop Bolt	I	Nut
E	Scraper Bracket Casting	J	Assembly

Fig. 40-9

Poly depth band scrapers - UHMW (A) cleans the horizontal depth bands and the vertical blades above the depth band. This scraper should be installed with a 1/8" gap between it and the depth band. Scraper backing plate spring steel material (B) provides support and rigidity to the poly scraper. Install with a 3/16" gap between it and depth band (G).

The single attachment bolt (D), holds depth band scraper bracket to the boot casting (C) and is critical in preventing the bracket from rubbing on and causing the disc blades not to turn. During set up and at times of maintenance, if there is interference between the bracket (E) and discs, insert screwdriver, or other tool to rotate and lift bracket slightly upward. At the time the planters are assembled, there is a star washer (H) inserted between the ear on the scraper bracket, the boot casting (C), and the bolt (D) goes through and is tightened in place with the nut (I). This attachment prevents the scraper bracket (E) from turning and contacting the boot casting (C).

EXTREME SITE CONDITIONS: Very loose seed beds and muddy conditions cause dirt and mud to build up on top of scraper bracket (E), and drop down and around the disc blades. This in turn causes the blades to stop turning and lock in place. In these circumstances, it may be necessary to remove the entire scraper assembly (E, A,B) before returning the bolt (D) and attaching nut (I) to the boot casting (C). When returning to normal planting conditions reinstall the scraper bracket and scrapers to their original position. "O" and "I" must be reinstalled (even when "E" is removed) because they serve as the down stop for the "h" frame.

3) FRONT (VERTICAL) SCRAPER ASSEMBLY

Spring steel, spring loaded scrapers clean vertical disc blades. There are several interchangeable sizes to fit different depth band diameters. Standard scrapers, to fit 12" depth bands can be reversed, LH to RH to fit 11-1/2" depth bands. Simply move scraper (D) to the position of (E) and (E) to the position of (D). If scrapers are not tight against the disc blades, then tighten nut (A) one or two turns.

FRONT OF DRILL

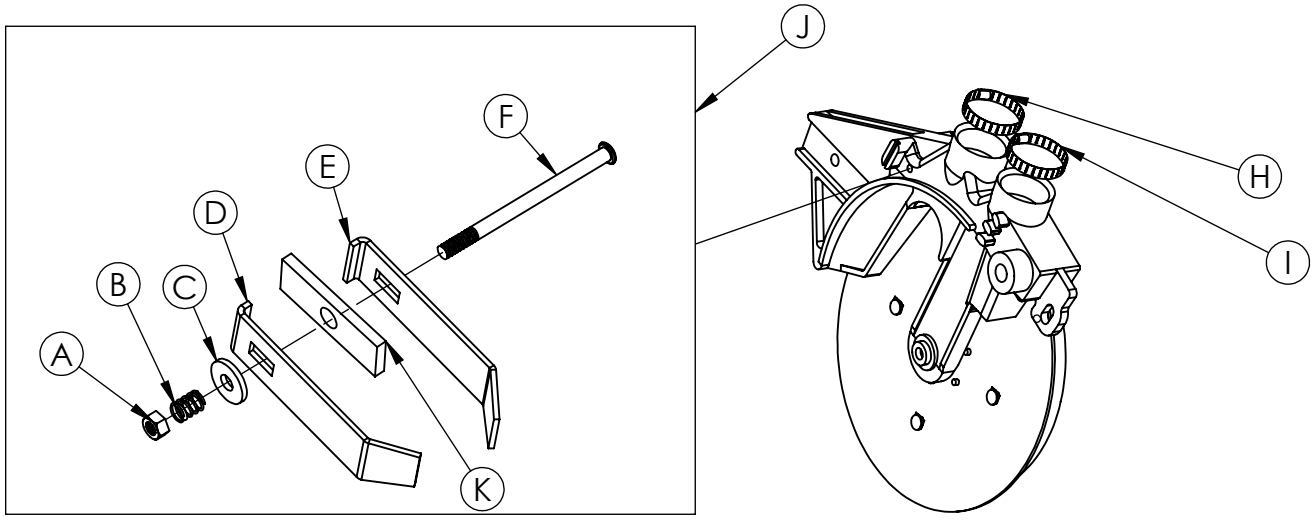
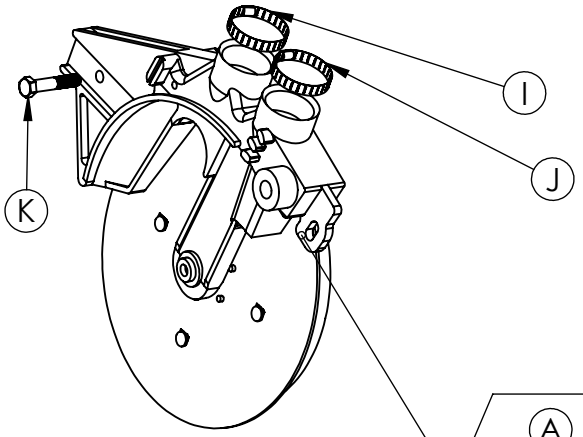


Fig. 40-10

NOTE: SEE PAGE 90-5 FOR PART #s'

A	Nut	F	Carriage Bolt
B	Spring	H	Hose Clamp
C	Washer	I	Hose Clamp
D	Sraper LH	J	Assembly
E	Scraper RH	K	Boot Casting

4) INSIDE SCRAPER ASSEMBLY



NOTE: SEE PAGE 90-5 FOR PART #s'

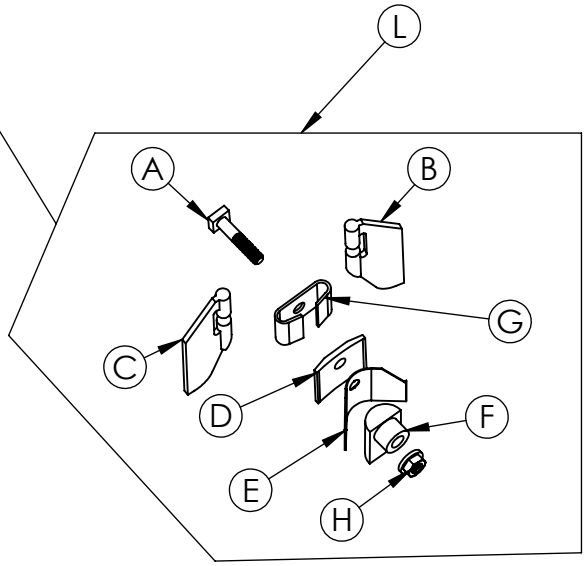


Fig. 40-11

A	Sq Head Bolt	G	Scraper Wrap Around Clip
B	Scraper Blade RH	H	Nut
C	Scraper Blade LH	I	Hose Clamp
D	Spacer-Scraper	J	Hose Clamp
E	Spring Leaf	K	Bolt
F	Scraper Block	L	Assembly

Spring loaded cast iron wipers clean inside of discs which prevent the blades from being spread apart when they rotate 360 degrees. To check condition of assembly, it will be necessary to remove scraper bracket assembly (L) so that you can observe the cast iron wipers (B & C) and the tightness of the scraper retaining nut (H). The wipers (B & C) should have uniform wear and be firmly against the discs. There should be 1 to 4 threads on scraper bolt (A) exposed.

The disc blades should be firmly together for a distance of 2-3/8" and be loose enough for two pieces of paper to be pulled between them. The blades should freely be turned with one hand and if not shims (1100) should be added.

The disc bolts, K-501M & K-500M should be torqued to 130-135 lbs.

PLANTERS

Installation of new scrapers is best done when the blades are being serviced.

1. Remove the planter assembly (remove two hose clamps (I&J) and one 1/4" bolt (K) that holds the planter to the lift bracket (see page 40-12).

2. Pull the entire assembly from the drill, turn upside down, and clamp boot casting in to a vise (see page 40-14).

3. From the rear of the assembly, closest to the press wheel, remove the left disc blade, this disc bolt will have a right hand thread, then remove 1/4" nut (H) and remaining parts from scraper assembly. Clean and inspect parts as you install new inside scraper assembly (see page 40-12).

4. Insert 1/4" x 20 square head bolt (A) 2" long in to the hole provided in the boot casting (see page 40-12).

5. With wipers attached to clip (G), slide on to 1/4" Bolt. Then slide the black plastic spacer (D) with flat back facing the clip on the bolt (see page 40-12).

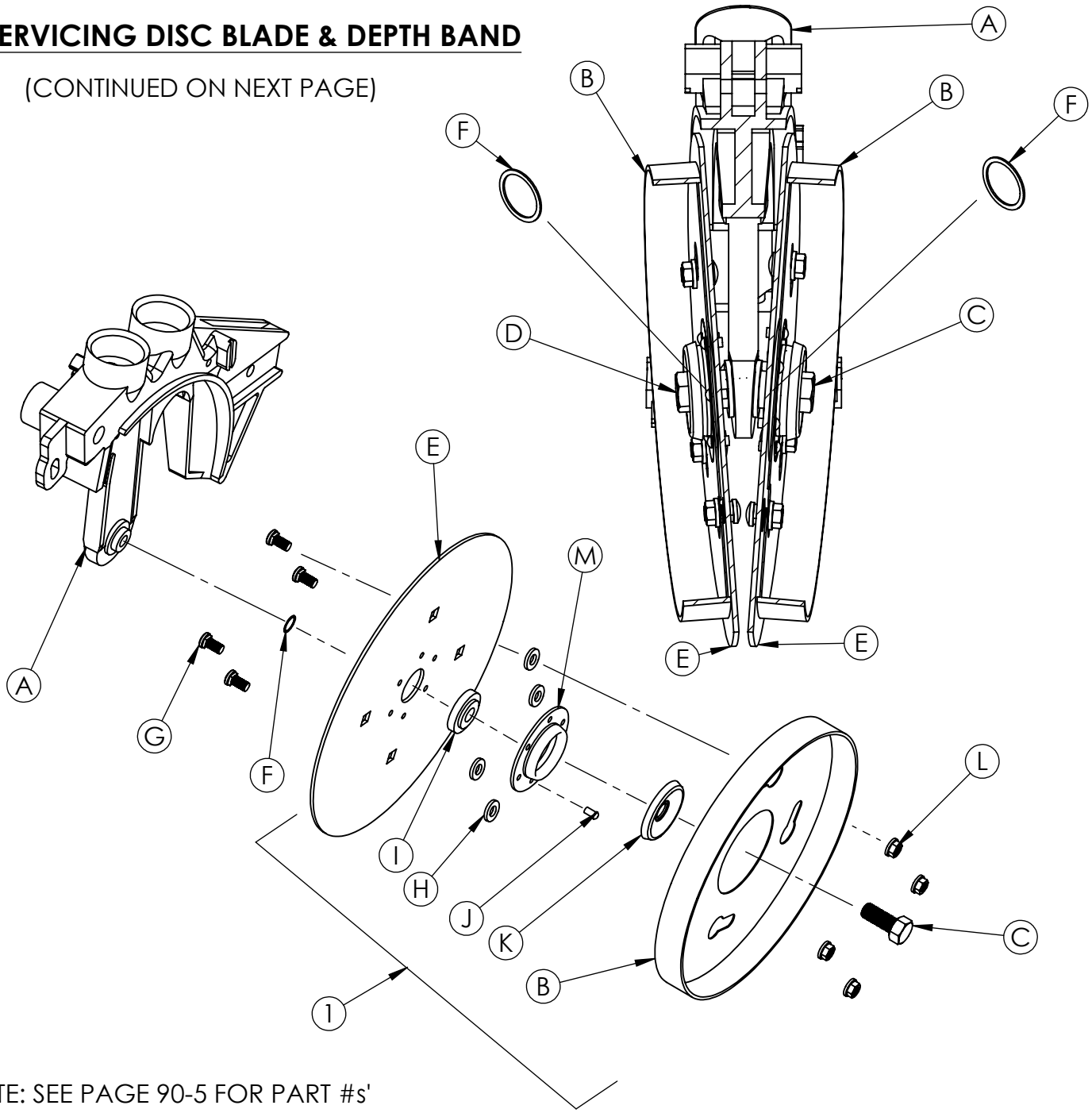
6. Then slide the flat spring (E) on to the bolt, noting the orientation of the slopes of the spring, followed by the second plastic block (F) with a rounded back (see page 40-12).

7. The flange nut (H) with a smooth back is then attached. Screw on so that there are no threads exposed on the outside (see page 40-12).

8. If both disc blades have been removed, reattach the first one with 2 bushings (#1100) under the blade as it is reattached to the boot casting. Then reattach the second blade, also with 2 bushings (#1100) under the blade. The scraper assembly should be joshed by hand to get the wipers to lay flat against the blades and hang freely. If the assembly is loose and sloppy, turn nut (H) in one or more turns. Apply a drop of green loctite (see page 40-12).

5) SERVICING DISC BLADE & DEPTH BAND

(CONTINUED ON NEXT PAGE)



NOTE: SEE PAGE 90-5 FOR PART #s'

Fig. 40-12

A	Boot Casting	F	Spacer	K	Cap
B	Depth Band	G	Carriage Bolt Short Neck	L	Nut
C	Hex Head Cap Screw RH	I	Bearing	M	Case
D	Hex Head Cap Screw LH	H	Washer	1	Assembly
E	Blade	J	Rivet		

5) SERVICING DISC BLADE & DEPTH BAND

(CONTINUED)

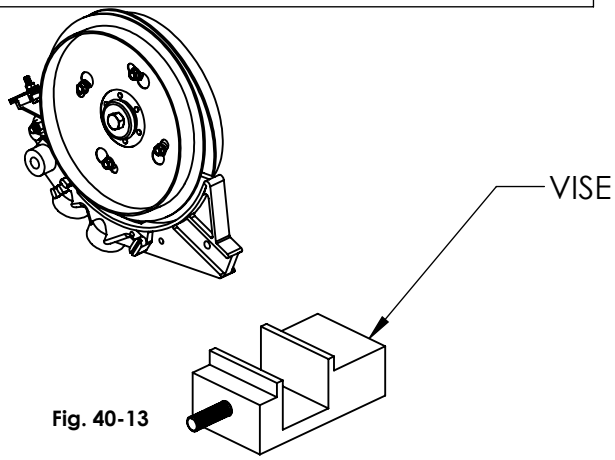


Fig. 40-13

Service of the disc blades is easiest accomplished by removing the planter assembly and placing the assembly upside down in a vice as shown. Start by removing bolt (K) and two hose clamps (I&J) as shown on page 40-12 and remove planter assembly.

Seed placement is directly affected by the disc blades, depth bands, and scrapers.
Renewal or replacement of the disc blades is dependent of the diameter of the discs. New blades, item (E) on page 40-13 are 13-1/2" in diameter when new and will continue to be functional until they are worn down to less than 13-3/16" diameter. Therefore new bearings can be installed on blades this size or larger; however, when worn smaller it would not be cost effective because the blades would be too small before the bearings are worn out.

Note: Blades smaller than the 13 - 3/16" could be used with smaller depth bands for deeper seed placement and still be functional.
Note: Remember, the left hand disc bolt (K501M) when seen from rear of drill facing forwards, has left hand threads and must be rotated accordingly.

After blade removal, inspect scrapers for wear or damage and replace as needed, page 40-12. Again, check blades for their size - a minimum of 13-3/16". Blades can be serviced by grinding rivets (J) page 40-13 and installing new bearings and bearing cases. Old cases can be reused if the bearings have a press fit; otherwise replace both as a unit. **The bearing cases must be riveted, using #16H630 rivets (Steel), because a bolted assembly will fail within 100 acres or less.**

Depth bands must be serviced so that they lay on to the blades and are not out of round. Remove from the blades, stand on a anvil or vise, and use ball peen hammer to pound out dents. Most bands can be straightened one or two times before requiring replacement. Bands with broken welds generally will require replacing.

Reassembly begins with the servicing or replacement of inside scraper assembly, (L) page 40-12. Reinstallation of blade, case, band and bearing is accomplished by inserting bolt (C) page 40-13, through cap (K) before going through the blade assembly. Before threading in to casting (A), apply several drops of lock-tite (blue) on to the threads, and put two spacers on before threading in to the casting. Before tightening, check scrapers (C & B) page 40-12 to make sure they are correctly orientated. Also check scraper spring (E) for its orientation, page 40-12. Install second blade assembly following the same procedure.

NOTE: Before proceeding again, check inside scraper assembly (L) page 40-12 to confirm it is free from binding against the disc blades.

After installation of both disc blade/depth band assemblies there should be approximately 2-3/8" of blade contact at the point the blades enter the ground. At point of contact you should be able to pull two pieces of paper between the blades. The gap should be between .006" and .060". If you cannot turn one blade at a time it is necessary to install another spacer shim on the disc bolt (K500M & K501M) before threading them into the boot casting.

Reinstall rear scraper casting, white poly scrapers and spring steel metal backing plates as per page 40-10. Follow instructions, page 40-10, to adjust scrapers to prevent interference and binding of blades and boot casting. Install outside scrapers to clean vertical disc blades. Position and adjust to provide clean disc blades. Do not over tighten nut (A) page 40-11 because it will lead to bent scrapers (D & E) page 40-11.

6) LEADING PRESS WHEELS

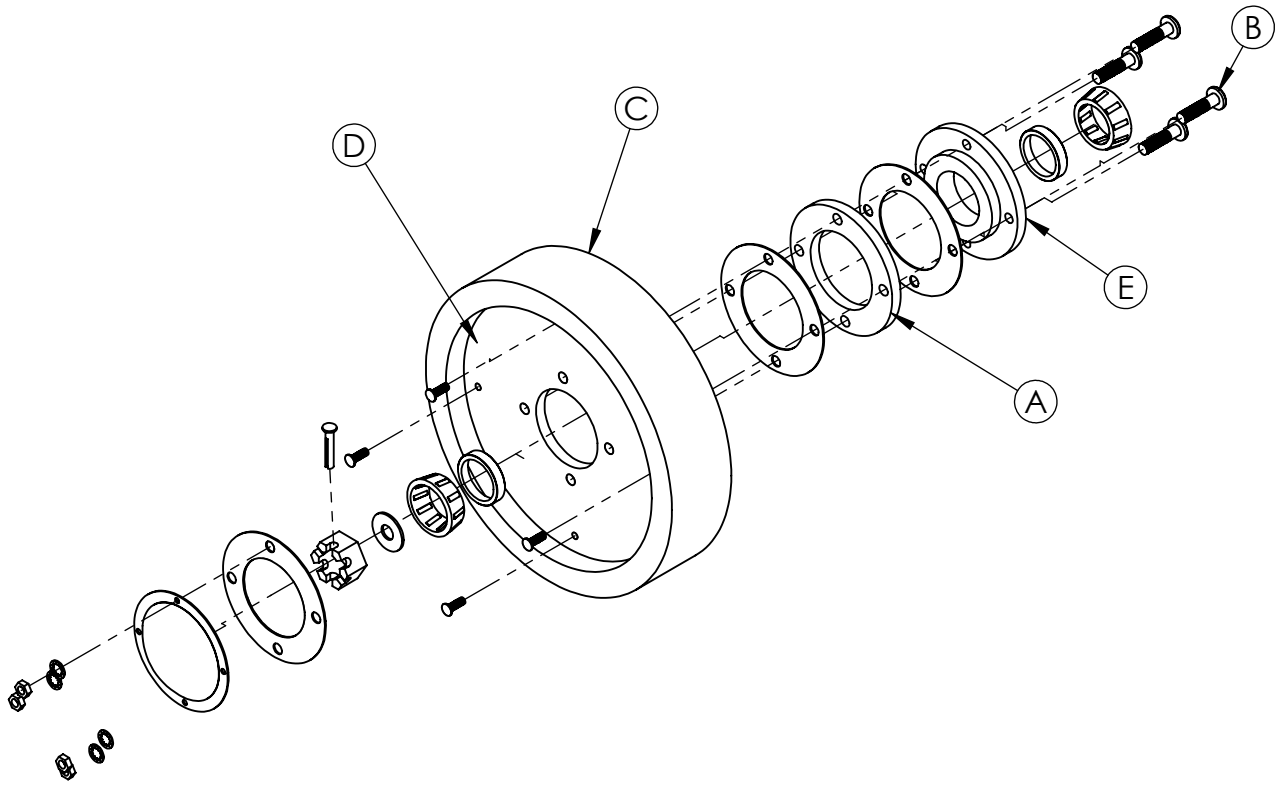


Fig. 40-14

NOTE: SEE PAGE 90-67 FOR PART #s'

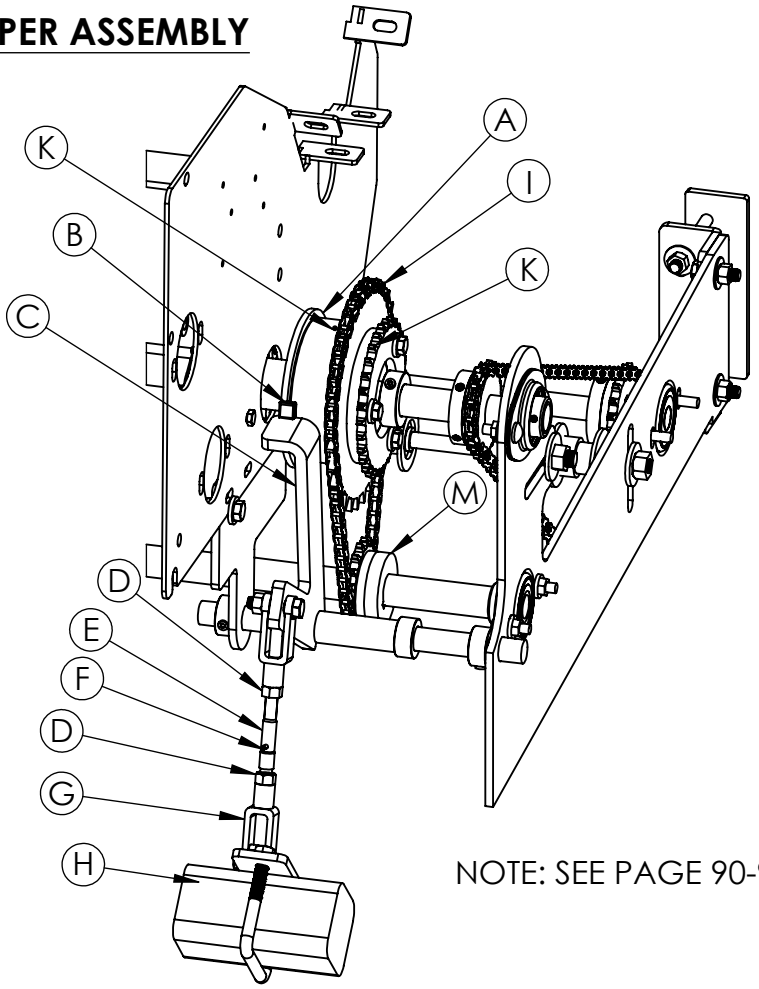
A	Spacer	D	Wheel
B	Carriage Bolt	E	Hub
C	Tire		

The leading press wheels are interchangeable with the caster style no-tills that use 18" flat blades, either 13 or 24 waves, on OTG drills. Their primary use is on seed beds that are too loose and must be firmed before planting. **An important advantage is that the seed bed is only firmed above the planted seed and the 3-1/2" between rows is left loose and friable for water percolation without having the rill erosion that is common to rolled fields.**

To change from no-till to leading press wheels, you must remove the four carriage bolts (B) and change to a longer length. Next add spacer (A) (either two 1/4" spacers or one 1/2" thick which spaces the press wheel away from the units leg). This is followed by adding the wheel and tire (D/C) and replacing the dust cap and nuts. When changing from a no-till blade to a leading press wheel, the bearings and seals are not removed or serviced. A grease zirk on the back of hub (E) should be serviced every 100 acres.

SPEED CHANGER & CLUTCH ASSEMBLY

1) CLUTCH TRIPPER ASSEMBLY



NOTE: SEE PAGE 90-9 thru 90-15 FOR PART #s'

Fig. 40-15

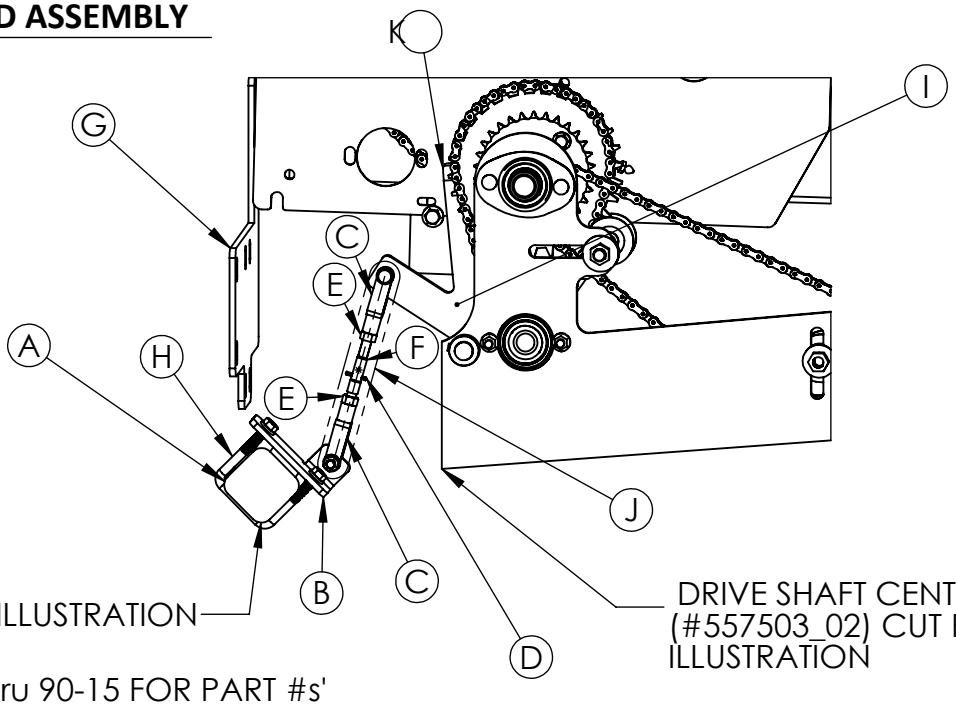
A	Clutch Housing	E	Spring	I	Sprocket
B	Tripper Dog	F	Roll Pin	J	Grease Zirk
C	Clutch Tripper	G	Clevis	K	Sprocket
D	Nut	H	Rock Shaft	L	Sprocket

The clutch is tripped and power to turn the shafts in the seed metering cups stops when the planters are hydraulically raised and the rock shaft (H) rotates and moves the tripper (C) towards the tripper dog (B) that is part of the clutch housing (A). When the planters are in the full up position, the tripper (C) should be within 1/8" of contacting the clutch housing (A). If by chance the tripper (C) contacts the tripper dog (B), there is an over ride spring (E) in the trip rod to prevent damage to the assembly. Adjustment of this gap can be gotten by loosening the two nuts (D) and turning the clevises (G) in or out to achieve the proper length.

Clutch Greasing: The grease zirk (K) for the clutch assembly is located on the left side of 54 tooth clutch sprocket (I)

Clutch Output Reduction: Increased output to all seed boxes is achieved when the chain is moved from sprocket (I) to sprocket (K). This output increase is about 45% depending on the specific seed box. Sprocket (L) needs to be moved to align with either (I) or (K) depending on which one is being used.

2) CLUTCH TRIPPER ROD ASSEMBLY



FEMALE END INSTALLED ON TOP WITH OPEN END DOWN

ROCKSHAFT VIEW FOR ILLUSTRATION

DRIVE SHAFT CENTER PLATE (#557503_02) CUT FOR ILLUSTRATION

NOTE: SEE PAGE 90-9 thru 90-15 FOR PART #s'

Fig. 40-16

A	Rockshaft	E	Nut	I	Clutch Tripper Engager
B	Clutch Tripper Bracket	F	Spring	J	Clutch Tripper Rod Assebmly
C	Clevis	G	Center Plate Support	K	Clutch Dog Tripper
D	Roll Pin	H	U-Bolt		

The clutch tripper rod assembly (J) is moved when the planters are hydraulically raised or lowered and the rockshaft (A) rotates and moves the assembly either up or down. The attachment of the clutch tripper rod assembly to the clutch tripper engager (I) is the linkage that will trip the clutch dog tripper (K) and deactivate the clutch rotation when in the transport mode and thereby stop the metering of the seed.

The clutch tripper rod assembly consists of two rods with attached clevises, a spring and a roll pin. The female rod assembly end with attached clevis must be installed on top so the open end is down. An anti-seize material should be applied to the male end before the spring is installed and the two halves are attached with the roll pin. The spring override provides flexibility in the event the clutch trip engager hits the clutch dog tripper when the planters are being raised.

Proper maintenace and lubrication of this assembly is important otherwise the clutch tripper rod assembly with attached clutch trip engager will not trip the clutch dog tripper.

3) OUTPUT REDUCTION

Coarse output reduction is achieved by moving sprocket (O)left or right to alight with either (M) or (H). The (H) to (O) combination is about 45 % the output of (M) to (O) combination.

The chain for the (H) to (O) combination is 31 links of A2040 chain with one # 2040L1 offset connector link and one #2040L2 connector link. The chain for the (M) to (O) combination is 25 links of A2040 with 1 full #2040L1 or 1 offset #2040L and 1 half #2040L2 connector link.

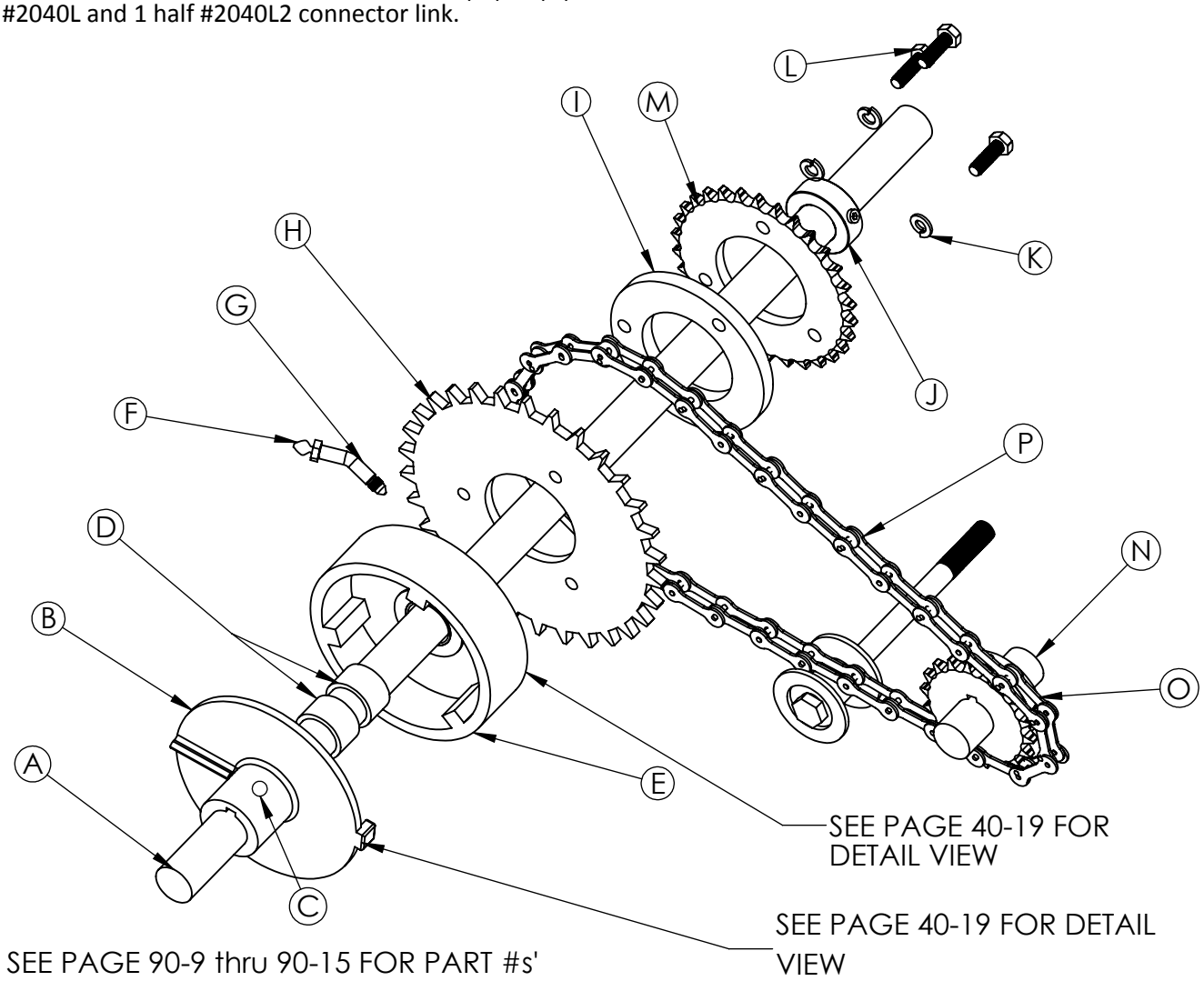


Fig. 40-17

A	Shaft	E	Clutch Hub	I	Spacer	M	Sprocket Small
B	Clutch Housing	F	Grease Zirk	J	Collar	N	Mainpower Shaft
C	Set Screw	G	Zirk Extender	K	Washer	O	Sprocket
D	Bushing	H	Sprocket Large	L	Carriage Bolt	P	Clutch Chain

4) INPUT POWER

The input power to turn shafts and seed meters on the OTG drills is gotten from a single direction clutch, items (E) & (B) The main power shaft (N) (which is powered from the drive wheel) and sprocket (O) turning the shaft through the chain (P) provide the torque to turn the clutch.

5) CLUTCH INSPECTION & SERVICE

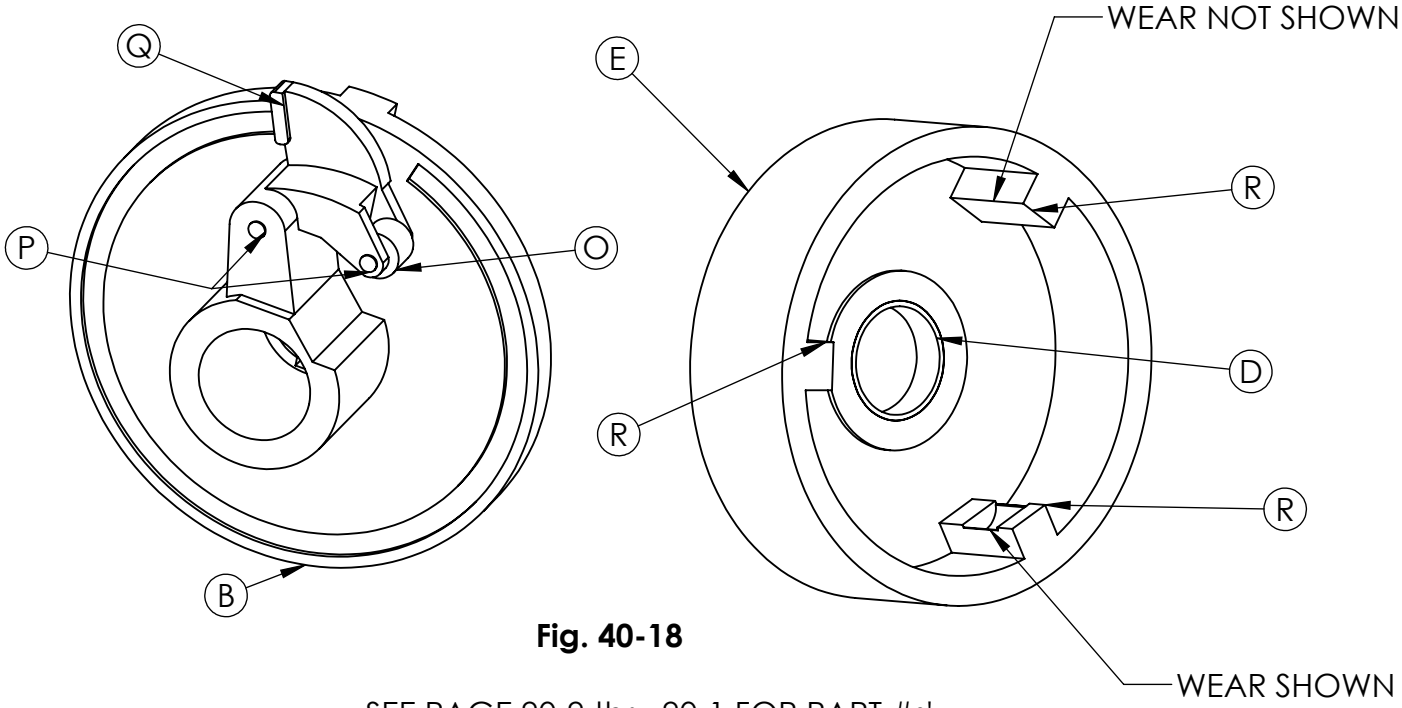


Fig. 40-18

SEE PAGE 90-9 thru 90-1 FOR PART #s'

O	Roller	E	Clutch Hub
P	Pin	D	Bushing
Q	Tripper	R	Boss
B	Clutch Housing		

NOTE: REFER TO PAGE 40-18 FOR LOCATION OF PARTS (C), (J), (T)

Inspection and Clutch Service

Failure of the clutch to turn the input power shafts can be attributed to several parts of the clutch.

- If the two bronze bushings (D) in the clutch hub (E) are worn, then the hub will wobble sufficiently so that the roller (O) in the tripper (V) will not engage the three bosses (R) in the hub (E).
- If the tracks or grooves have been worn in the three bosses (R) of the hub (E), then the roller (O) will not engage the hub and turn it. This failure is generally caused by lack of lubrication of the two brass pins (P) that the roller (O) and tripper (Q) pivot on.
- Placement of the clutch is achieved with a set screw (C) in the clutch housing and a shaft collar (J), with set screw on the outside of clutch hub (E). If either of these set screw loosen the clutch will move and malfunction.

Access to examine the clutch for wear or misalignment is achieved by removing several transitions, 10333 & 1033 and then loosening the set screw in the shaft collar on the right end of the clutch hub and sliding it to the right. After removing the clutch chain (T), slide the hub (E) to the right, this will allow you to check for wear of the three bosses (R). Any grooves or wear of these bosses indicate that the roller (O) has dragged across them and has caused undue wear to occur. This in turn will limit the clutch's ability to turn in the future without service and replacement of these parts. Lubrication of the two pins (P) will allow movement of tripper dog (Q) and roller (O) and will limit wear in the future.

A temporary "fix" can be achieved by having an "expert welder" braze the three bosses and grinding to match the un-touched area. When replacing the clutch, it's best to replace both halves - 1119 & 1120.

SPEED CHANGER & CLUTCH ASSEMBLY

6) FLUFFY BOX DERAILLEUR

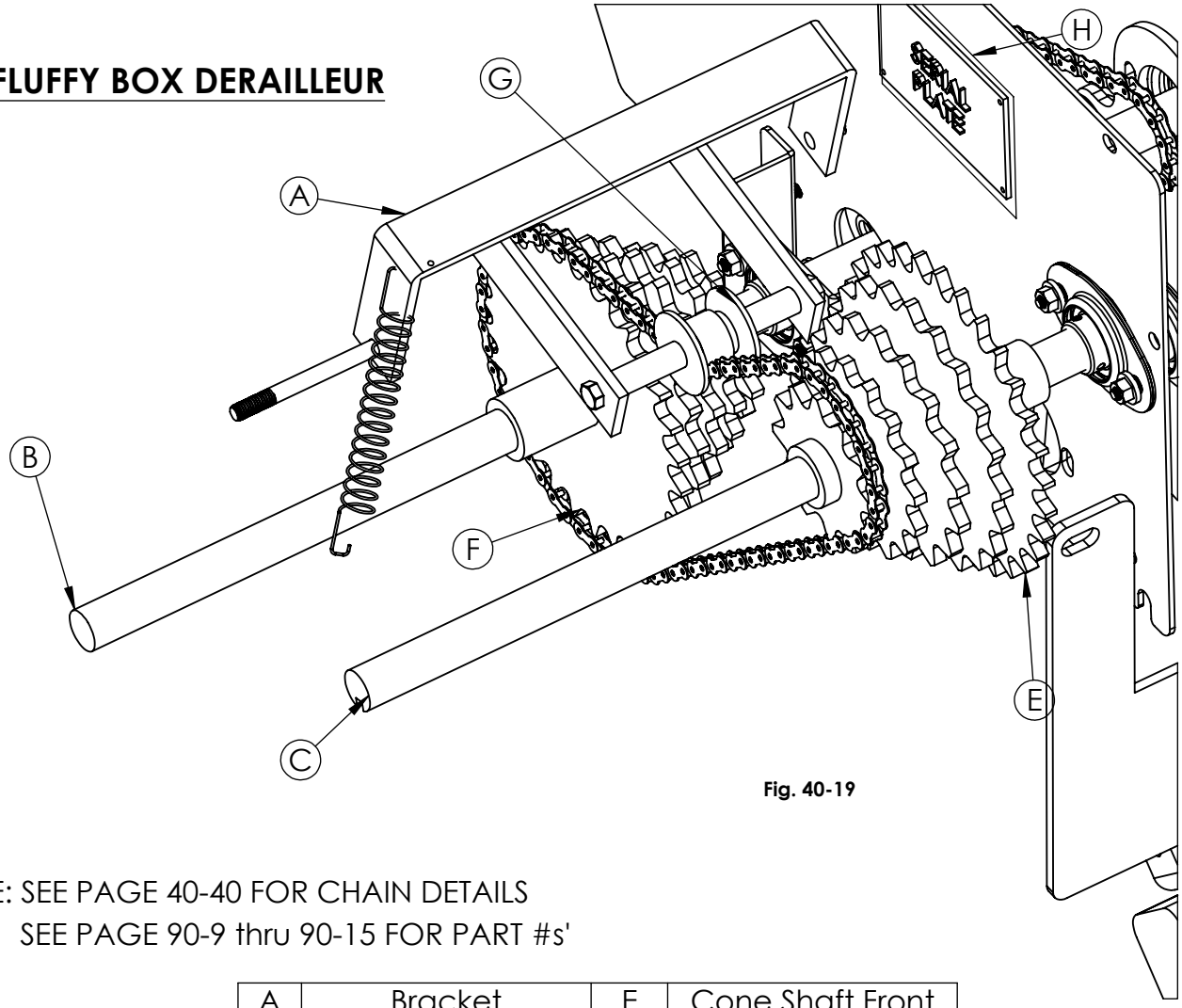


Fig. 40-19

NOTE: SEE PAGE 40-40 FOR CHAIN DETAILS
SEE PAGE 90-9 thru 90-15 FOR PART #s'

A	Bracket	E	Cone Shaft Front
B	Shaft Input	F	Cone Shaft Rear
C	Shaft Output	G	Spool
D	Chain	H	Serial Plate

The output of seed from the fluffy seed box is controlled by the rpm of the shafts turning the picker wheels and agitators. The rpm is a function of the 5 step cone sprockets (derailleur) turning the shaft (C) which turns the picker wheel shaft. The input power from the clutch through shaft (B) turns the rear cone sprocket (F) which controls the rpm of the front cone sprocket (E) as determined by the location of chain (D). The further the chain is to the right, (when viewed from the front) the slower the shaft (C) turns and hence the lower the output from the fluffy seed box.

To change sprocket combinations raise derailleur (A) so that the chain (D) can be moved to a different combination of sprockets.

IDLER ASSEMBLIES

NOTE: See "Idler Assemblies" located in the parts catalog for additional information.

The idler assemblies put tension on the chains to prevent them from "walking" off the sprockets. All idlers, using plastic rolls, are installed on the slack side of the chain. The following procedure should be followed when servicing idlers:

1) Before servicing chain idlers, be sure that the sprockets are in alignment and that the chain runs freely.

2) The idler for the fluffy seed box agitator and picker wheel must be positioned on the slack side in such a way as to allow the 3/8" bolt holding the derailleur idler assembly (part #15-7116A) to be installed in the end plate (part #103625) and still allow clearance for the chain.

MAIN FRAME

IMPORTANT: Clean drain holes in the main frame at least annually. Any water in the frame tubes may cause bulges to occur if it freezes. Drain holes are located on the bottom corners of the main frame and the bottom of all cross members.

1) The main frame has few moving parts; therefore it requires little maintenance.

2) The flex torsion knuckles are not meant to be field serviced; however, they can be adjusted to retain equal torsion forces and change alignment.

3) Refer to the "Speed Changer & Clutch Assembly Section" for information on the adjustment of the clutch tripper assembly.

TURNBUCKLE ASSEMBLY

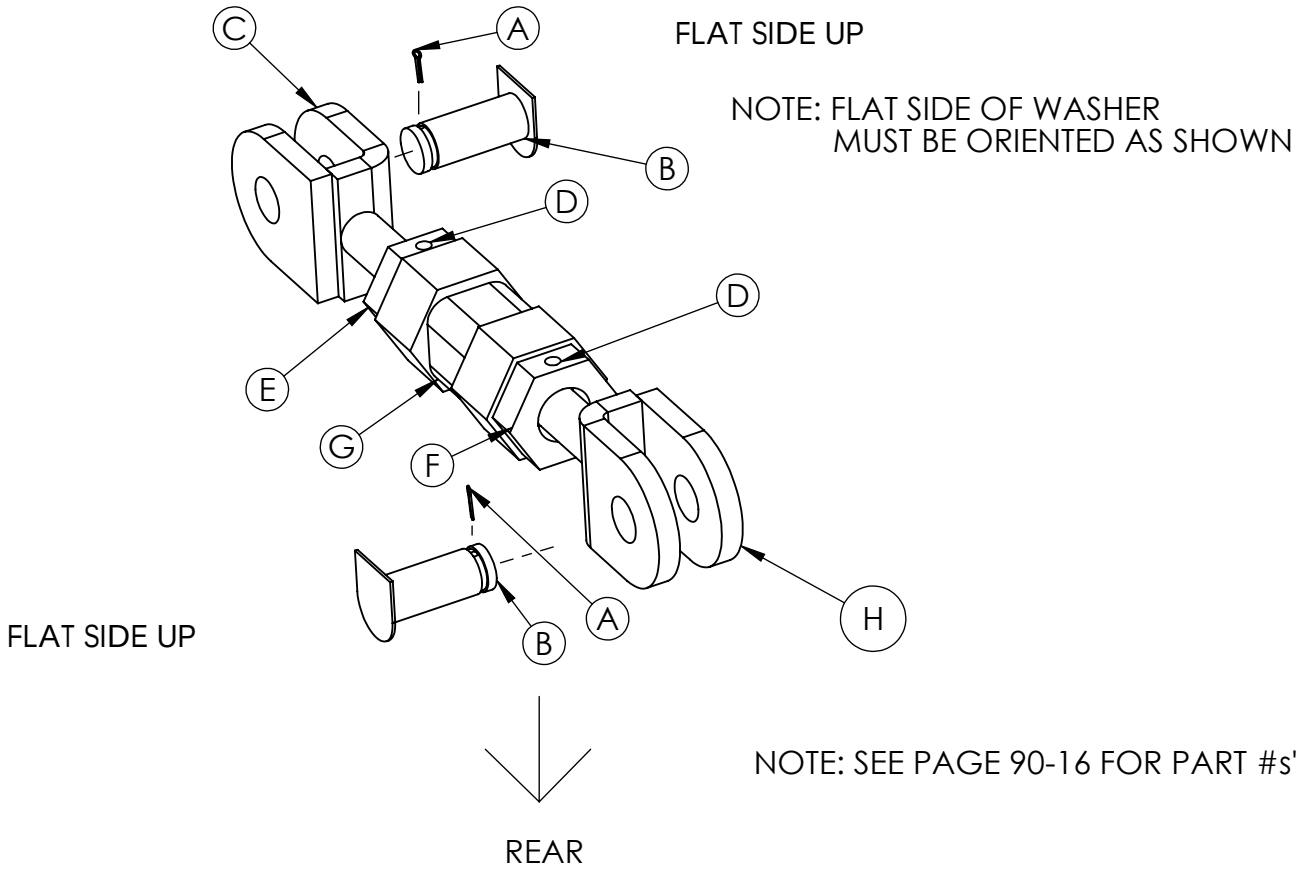


Fig. 40-20

A	Hitch Pin	E	Half Jam Nut
B	Hydraulic Pin	F	Half Jam Nut
C	Turnbuckle End	G	Turnbuckle
D	Set Screw	H	Turnbuckle End

The turnbuckle assembly provides uniform movement of the front and rear rockshafts. If one rockshaft lowers before the other, they can be restored back in to balance by loosening the two set screws (D) in the half jam nuts (E) that then be loosened. The turnbuckle (G) can then be turned and have its length changed. This in turn will affect the relative position of the rock shaft and its attached planters.

Note: If the turnbuckle is removed, be sure to reinstall the hydraulic pin (B) with welded washer in the correct orientation to prevent damage caused by contact with the lift brackets, # 10321.

IMPRINTER ASSEMBLY

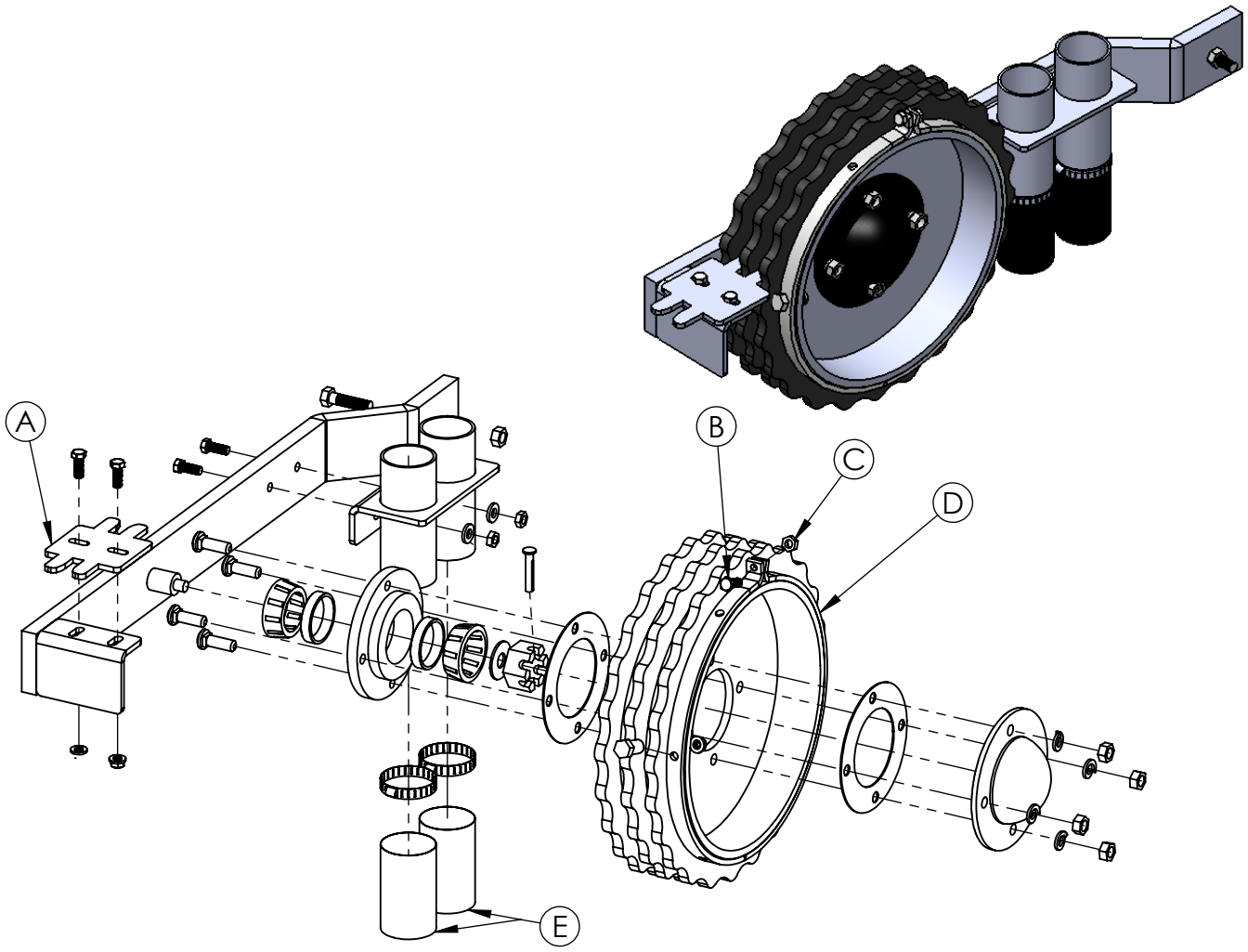


Fig. 40-21

NOTE: SEE PAGE 90-65 FOR PART #s'

A	Scraper	D	Imprinter
B	Bolt	E	Hose
C	Nut		

The interchangeable Imprinter Assembly can be used on OTG drills when sowing species such as sagebrush that needs to be placed shallow and pressed into the soil surface.

The scraper (A) needs to be adjusted so that it keeps mud and soil off the rotating imprinter wheels. **Mud build up will prevent the wheels from making dimples in the soil surface for seeds to be deposited in too. In addition, a muddy wheel will cause the seed to stick to the mud and not fall in to the soil dimples.**

The two flexible hoses (E) direct the falling seed down to the soil surface directly in front of the Imprinter and helps prevent wind from blowing the seed aside before being pressed in to the soil.

LUBRICATION

1) RECOMMENDED LUBRICANTS

Moving parts and bearings on all drills require regular lubrication. For optimum life of the drill it is recommended that synthetic grease (such as Kerr-McGee Mystik JT) (Truax part #9991) be used every 100 acres on all the zirks.

At points requiring lubrication that do not have a grease zirk, it is recommended that a light lubricant, such as LPS Silicone lubricant be applied on a daily basis.

Sliding surfaces, such as the idler in the speed changer, should have a silicone-based lubricant applied frequently.

LUBRICATION TYPE-QUICK CHECK	
PARTS	TYPE OF LUBRICANT
All Chains	LPS Silicone Lubricant
Feed Rolls	LPS Silicone Lubricant
Press Wheel Bearings	LPS Silicone Lubricant
Idler Bushings	LPS Silicone Lubricant
Clutch Zirk	Synthetic Grease
Spring Leveler Zirk	Synthetic Grease
No-Till Hub Zirks	Synthetic Grease
No-Till Shanks	Synthetic Grease
Leading Press Wheel Hub Zirks	Synthetic Grease
Box Hinges	LPS Silicone Lubricant
Bronze Bushings	LPS Silicone Lubricant
Double Disc Seals	Synthetic Grease
Lockout Hub	Synthetic Grease

REMEMBER: The first rule of good lubrication and maintenance is common sense!
Keep it clean and keep it oiled!

It is recommended that lubrication be done immediately after drill usage (while the surfaces are still warm). This will allow the grease to cover the bare metal parts before cooling and condensation has begun to form.

Axles are retained to main frame by 5/8" x 4-1/2" bolts and nuts. Check daily to be sure that they are in place and tight.

Check wheel lug nuts periodically to ensure they are tight. Lug nut torque should be 130-135 foot lbs each.

2) RECOMMENDED END WHEEL BEARING LUBRICATION SPECIFICATIONS

GREASE:

Thickener Type.....Lithium Complex
Dropping Point.....215˚C (419˚F) Minimum
Consistency.....NLGI No. 2
Additives.....EP, Corrosion & Oxidation Inhibitors
Viscosity Index.....80 Minimum

Approved Sources:

Mobil Oil.....Mobilgrease HP, Moilith AW 2
Exxon/Standard.....Ronex MP
Kendall Refining Co.....Kendall L-427
Ashland Oil Co.....Valvoline Multipurpose GM
76 Lubricants.....76 Multiplex EP
Mystik.....Mystik JT-6 Hi Temp Grease
Pennzoil Product Co.....Premium Wheel Bearing Grease 707L

3) BEARING ADJUSTMENT & HUB REPLACEMENT

If the hub has been removed or bearing adjustment is required, following adjustment procedure must be followed.

1. After placing the hub, bearings, washers, and spindle nut back on, rotate the hub assembly while slowly tightening the nut to approximately 130-135 foot lbs.

2. Then, loosen the spindle nut to remove the torque.

3. Finger tighten the spindle nut until just snug.

4. Back the spindle nut out slightly until the first castellation lines up with the cotter key hole and insert the cotter pin.

5. Bend over the cotter pin legs to secure the nut.

6. Nut should be free to move with only restraint being the cotter pin.

(Source: DEXTER AXLE)

3) ZIRK LOCATIONS

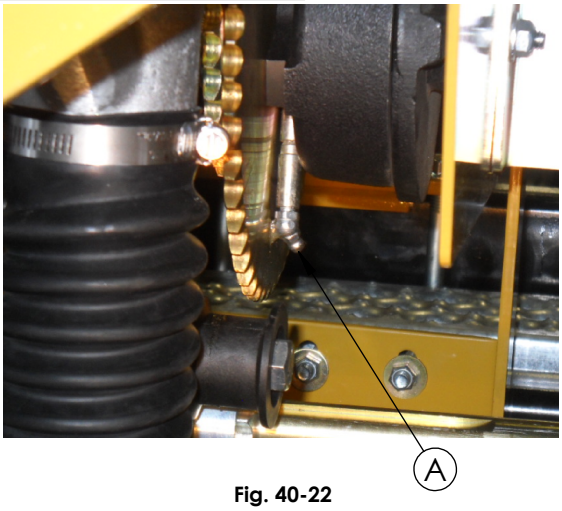


Fig. 40-22

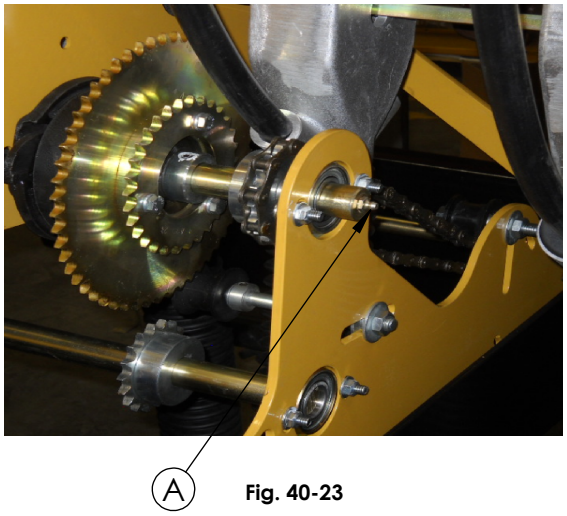


Fig. 40-23

① **Clutch hub - as seen from rear of drill. Right of 54 tooth sprocket in clutch hub. (#55022-)**

② **Clutch shaft (#55007 to #55021)**

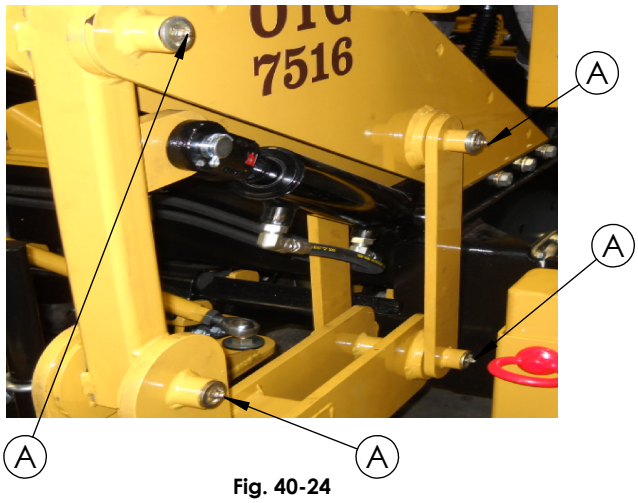


Fig. 40-24

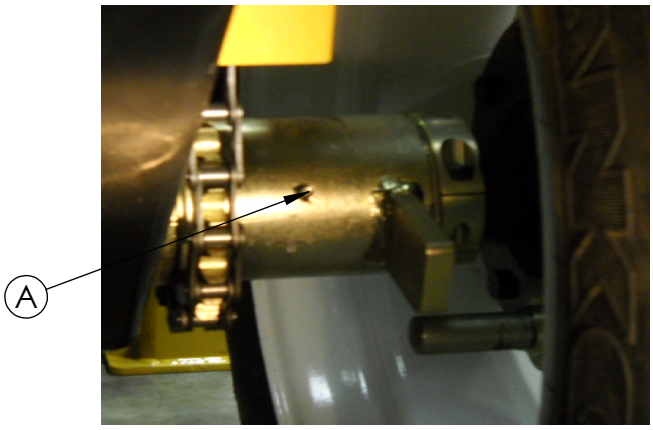


Fig. 40-25

③ **Parallelgram bars - 8 zirks**

④ **Lock-out hub**

A - Location of Zirk

The useful life of equipment is extended by diligent, timely attention to proper lubrication. The Truax OTG drills should be serviced daily or every 100 acres and have grease with NLGI perfmormance classification of GC-LB applied. For example, JT-6 brand. In addition, a silicone based aerosol lubricate should be applied to other, non greased wear points such as lid hinges, clutch tripper mechanism, rounded cover speed changer cover, calibration coupler, seed box shifter mechanisms, on a regular basis.

3) ZIRK LOCATIONS CONTINUED

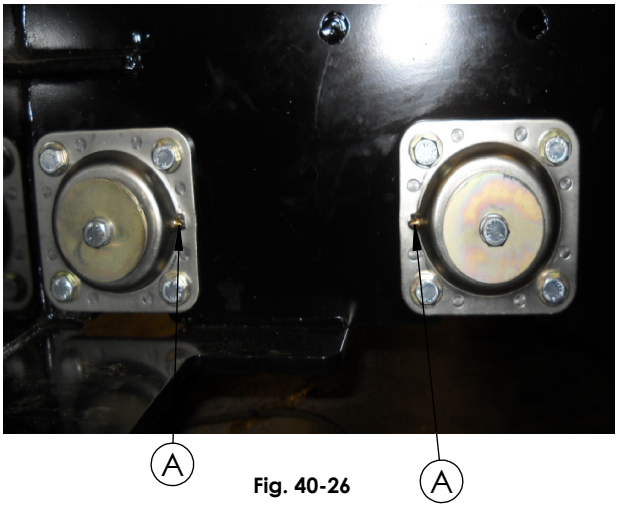


Fig. 40-26

5 **Rockshaft Outer Bearings**

Fig. 40-27

6 **Calibration Shaft**

The calibration shaft assembly underwent several revisions between drill serial #55001 and #55030. Therefore, close attention must be made with details on pages 90-69 thru 90-77 when ordering parts.

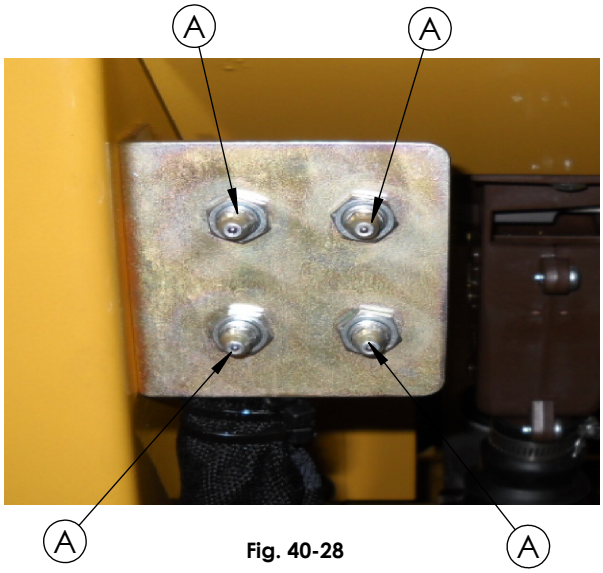


Fig. 40-28

7 **Grease Bank**
(Inner Rock Shaft bearings only)

A-Location Of Zirk

Composite bearings used on inner Rock Shaft bearing from (#55020 to #55023) When used, there are no grease fittings.

3) ZIRK LOCATIONS CONTINUED

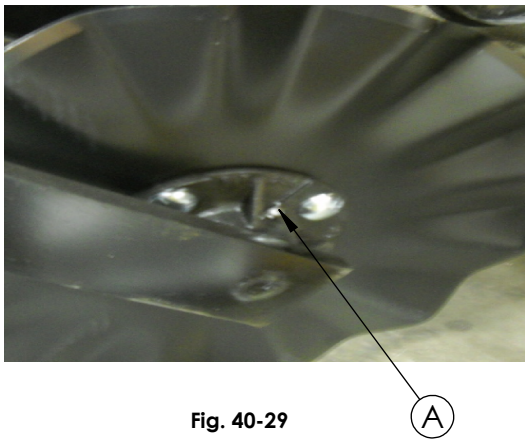


Fig. 40-29

(8) No-Till Hub

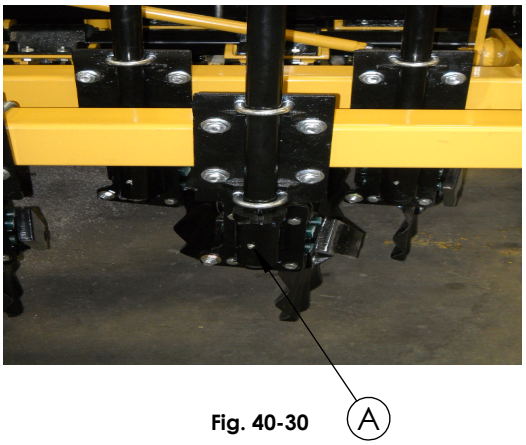


Fig. 40-30

(9) No-Till Shank

4) LUBRICATION SCHEDULE

Chains	Apply LPS Silicone Lubricant, WD-40, or equivalent. At the end of the season, remove the chains and soak them in light oil for storage purposes.
Seed Boxes	Check frequently and clean as needed. Apply LPS Silicone Lubricant, WD-40, or an equivalent lubricant to the hinges.
Speed Changer	The derailleur style of speed changer for the fluffy box requires lubrication maintenance. LPS Silicone should be applied to the idler bushing that retains tension on the chain between the two cone sprockets once a day. Also, LPS Silicone should be applied to the derailleur chain and clutch tripper rod pivot points on a daily basis.
Clutch	Grease daily with synthetic grease such as JT-6 synthetic grease (part #9991).
Idlers	All idlers have a steel bushing that should be lubricated weekly with a silicone lubricant.
Double Row Bearing	Triple lip, double row bearing requires no grease.
Press Wheel Bearings	Press wheels do not have a zirk in the press wheel bearing (part #1092AI). These should have a silicone lubricant applied several times per day for optimum life of the bearing. The bearing (part #1092AI) has been hardened to Rockwell-40 and will have slight wearing if the lubricant is not applied. There will be more wearing on the axle bolt (part #B12-4) if a silicone lubricant is not applied several times per day.
Wheel Bearings	The wheel bearings on all drills use a tapered roller bearing. When servicing these bearings, clean, check for wear, and use synthetic grease, such as JT-6 (Truax part #9991) or equivalent. Check seals for leaking.
Lockout Hub	Grease daily or every 100 acres with synthetic grease such as JT-6 synthetic grease (part #9991).
No-Till Hub	The no-till hubs have a zirk on the back that should be greased daily. Do not over grease as it may cause the seals to be forced out of position.
No-Till Shank	Drills have shank pivots that should be greased daily or every 100 acres.
No-Till Parallelogram Frame	8 Zirks (4 on each end) need to be greased daily or every 100 acres.
Grease Bank	Grease daily or every 100 acres.
Calibration Shaft	Grease daily or every 100 acres.
Rockshaft Outer Bearings	Grease daily or every 100 acres.

1) HYDRAULIC CYLINDERS

Before working on drill hydraulics, secure the drill tongue to tractor drawbar & block wheels to prevent movement. Rephasing system has been cycled at factory, only a small amount of tractor hydraulic fluid will be needed.

The hydraulic cylinders on OTG models 7508 & 7512 have rephasing cylinders used on no-till assemblies and 1 non-rephasing cylinder used for planter assemblies. The hydraulic cylinders on OTG models 7516, 7518, and 7522 have rephasing cylinders used on planter & no-till assemblies. The larger hydraulic cylinders are always installed on the drive side for both planter & no-till assemblies. No-till hydraulic cylinders are installed with the rod end up while the planter hydraulic cylinders are installed with the rod end down.

The objective is to get both cylinders fully retracted. When cylinders stay in a fully retracted position it will mean there is no air or leaks in the system. It is important that any time the cylinders are removed or the hoses disconnected, that the proper procedure be followed when reconnecting them. After reconnecting the hoses, bleed the air from the system by cycling the system through the tractor hydraulics several times. Do not try to bleed air from the system by loosening fittings. After hooking up the hydraulic system, cycle the system so that the planters & no-tills raise and lower until they go up or down together. If this does not happen, it may be caused by either an air bubble in the system, low hydraulic fluid in the system, poor hydraulic connection, or incompatible hydraulic connectors.

After checking the hydraulic fluid level, continue to cycle the system. If after a period of time the system does not level out, there may be a problem with the cylinders or the pumping unit. The rephasing cylinders have a bypass point to allow oil to flow to the other side and there may be a stoppage at this bypass (this can't be field serviced). Something as small as a tiny chip of paint may be the cause or there may be a leaking "O" ring or seal.

The hydraulic system is filled with Anti Wear ISO Viscosity 46 hydraulic fluid during manufacture of the drill.

Upon completion of the cycling of the hydraulics, check if the tractor reservoir tank is at a proper level.

Bleeding the air from the hydraulic system is one of the most difficult mainetance projects. DO NOT remove fittings or change hoses unless necessary! Only remove fillings or hoses after planters & no-tills have been lowered to planting position.

If cylinders do not retract equally, check to see whether ends are screwed on uniformly.

Hydraulic hose quick disconnect couplers look similar-they must be an exact matched set to work properly. If there is a problem, it may be necessary to remove both male and female ends from the hoses.

2) HYDRAULIC HOSES

FOR ROCKSHAFT TIE-ROD HYDRAULIC CYLINDER ASSEMBLY & PART NUMBER SEE PAGE 90-20

HYDRAULIC TIE-ROD CYLINDER HOSES				
MDL.	TRACTOR TO VALVE	VALVE TO CYLINDER	CYLINDER TO TRACTOR	
7508	15'	3'	17'	
7512	15'	3'	17'	
	TRACTOR TO LARGE CYLINDER	CYLINDER TO CYLINDER	SMALL CYLINDER TO VALVE	VALVE TO TRACTOR
7516	20'	6'	4'	15'
7518	20'	6'	5'	15'
7522	20'	8'	5'	17'

FOR NO-TILL WELDED HYDRAULIC CYLINDER ASSEMBLY SEE PAGE 90-53

NO-TILL WELDED HYDRAULIC CYLINDER HOSES				
MDL.	TRACTOR TO LARGE CYLINDER	CYLINDER TO CYLINDER	SMALL CYLINDER TO VALVE	VALVE TO TRACTOR
7508	20'	7'	6'	15'
7512	21'	9' OR 10'	6'	15'
7516	22'	12'	8'	15'
7518	23'	14'	8'	15'
7522	27'	16'	10'	15'

3) HYDRAULIC CYLINDER LENGTH

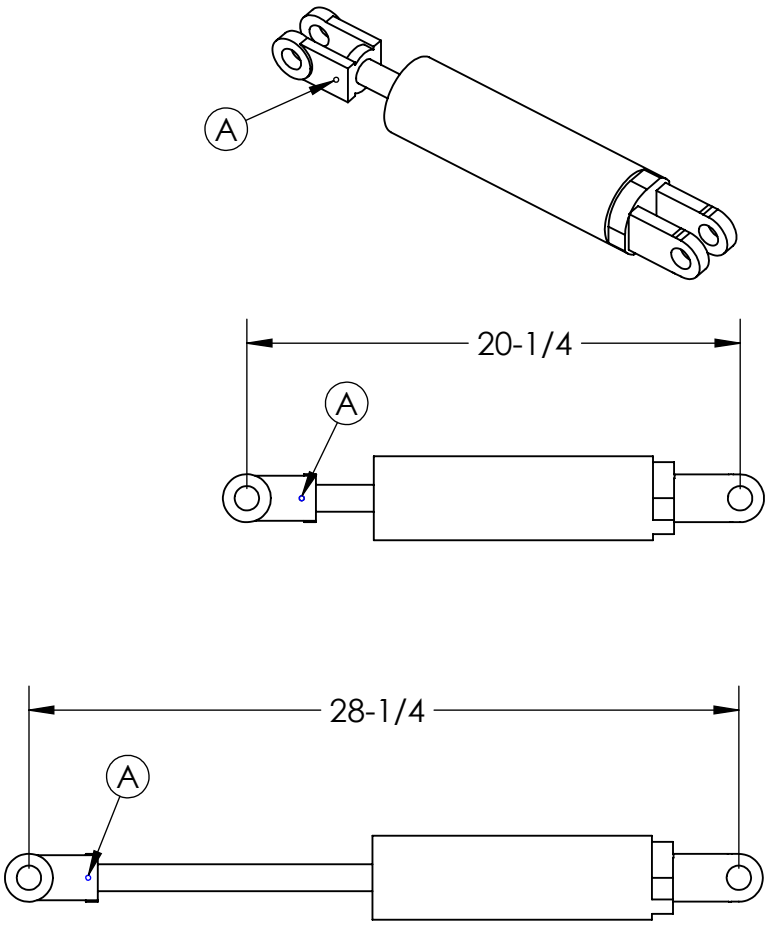


Fig. 40-31

All cylinders, both tie rod style and welded style have 8" strokes and all have a clevis that is screwed on to their moveable ends. The clevis is secured to the threaded end by a locking set screw (A) that prevents the clevis from unscrewing in use. Movement of the clevis will change the cylinder length and thereby change the degree of rotation of the attached parts. IMPORTANT: Check the clevis end and set screw for tightness!

All hydraulic cylinders, rephasing style and nonrephasing styles, in both the welded version as well as tie rod bolted styles have a extended length of 28-1/4" and a retracted length of 20-1/4".

Lengths same for all cylinders.

After serial #55005, all rockshaft cylinders are welded style on models 7516, 7518, and 7522.

HYDRAULIC CYLINDERS

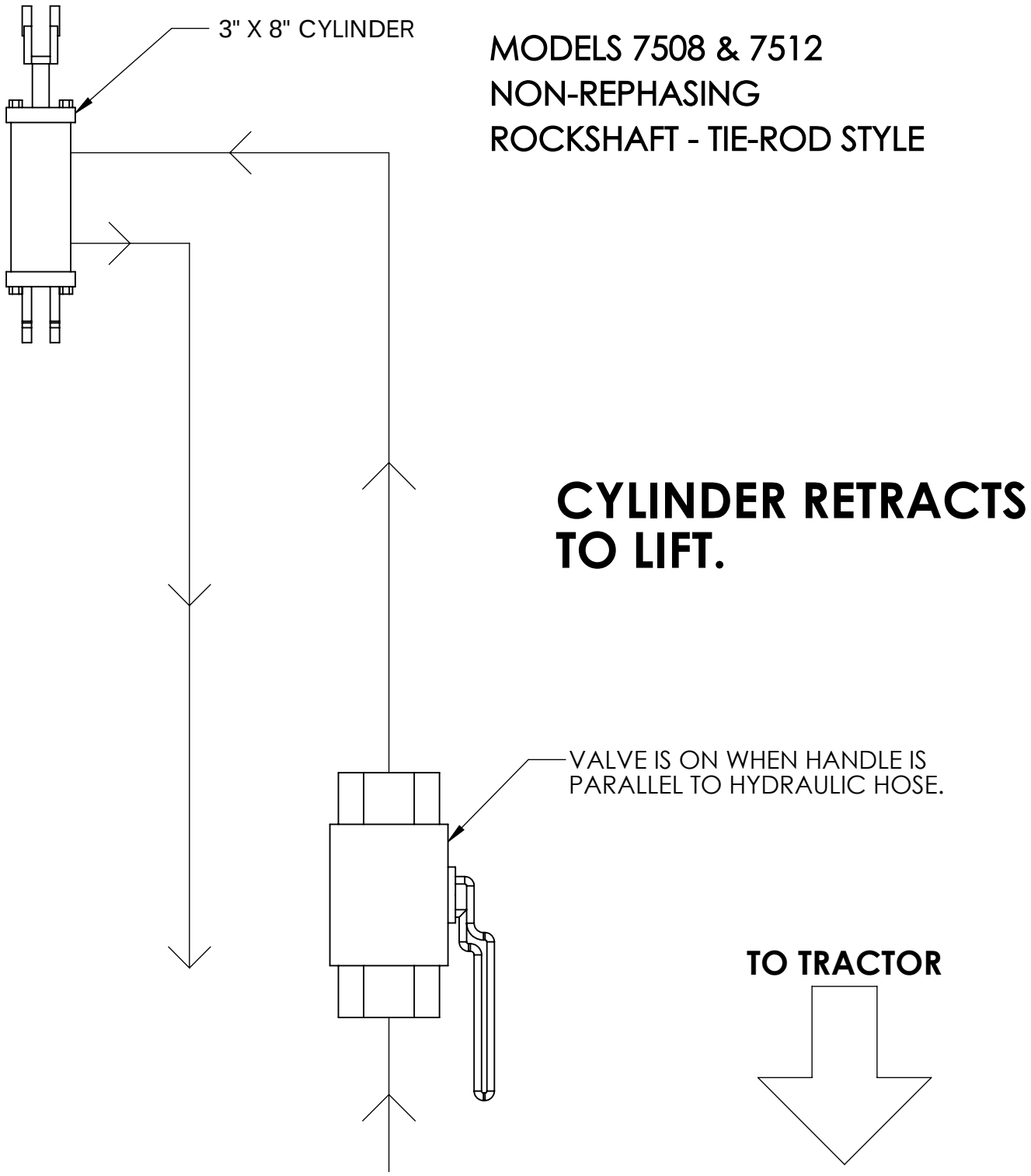


Fig. 40-32

HYDRAULIC CYLINDERS

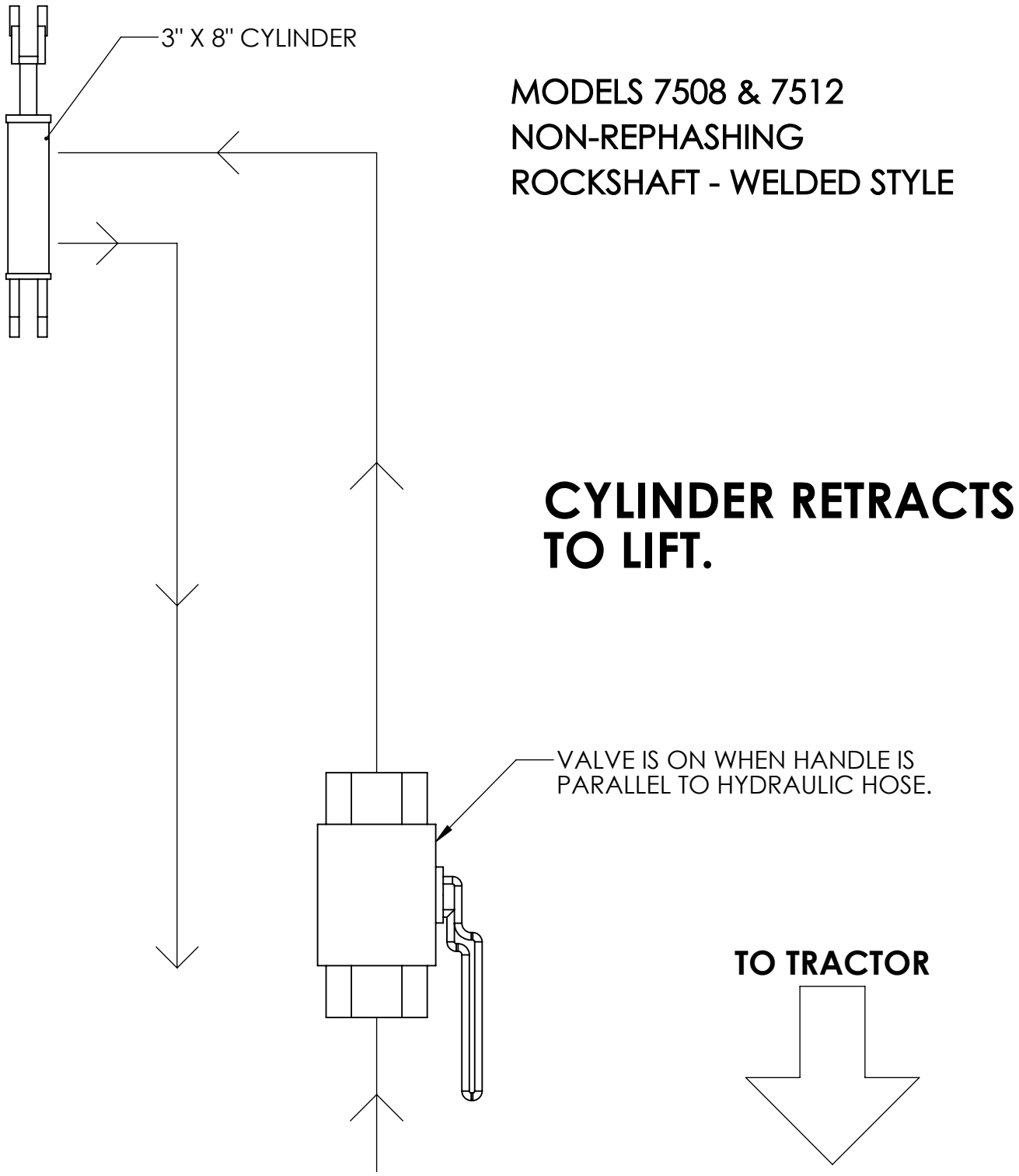


Fig. 40-32A

HYDRAULIC CYLINDERS

MODELS 7516, 7518, 7522 BOTH REPHASING ROCKSHAFT - TIE-ROD STYLE

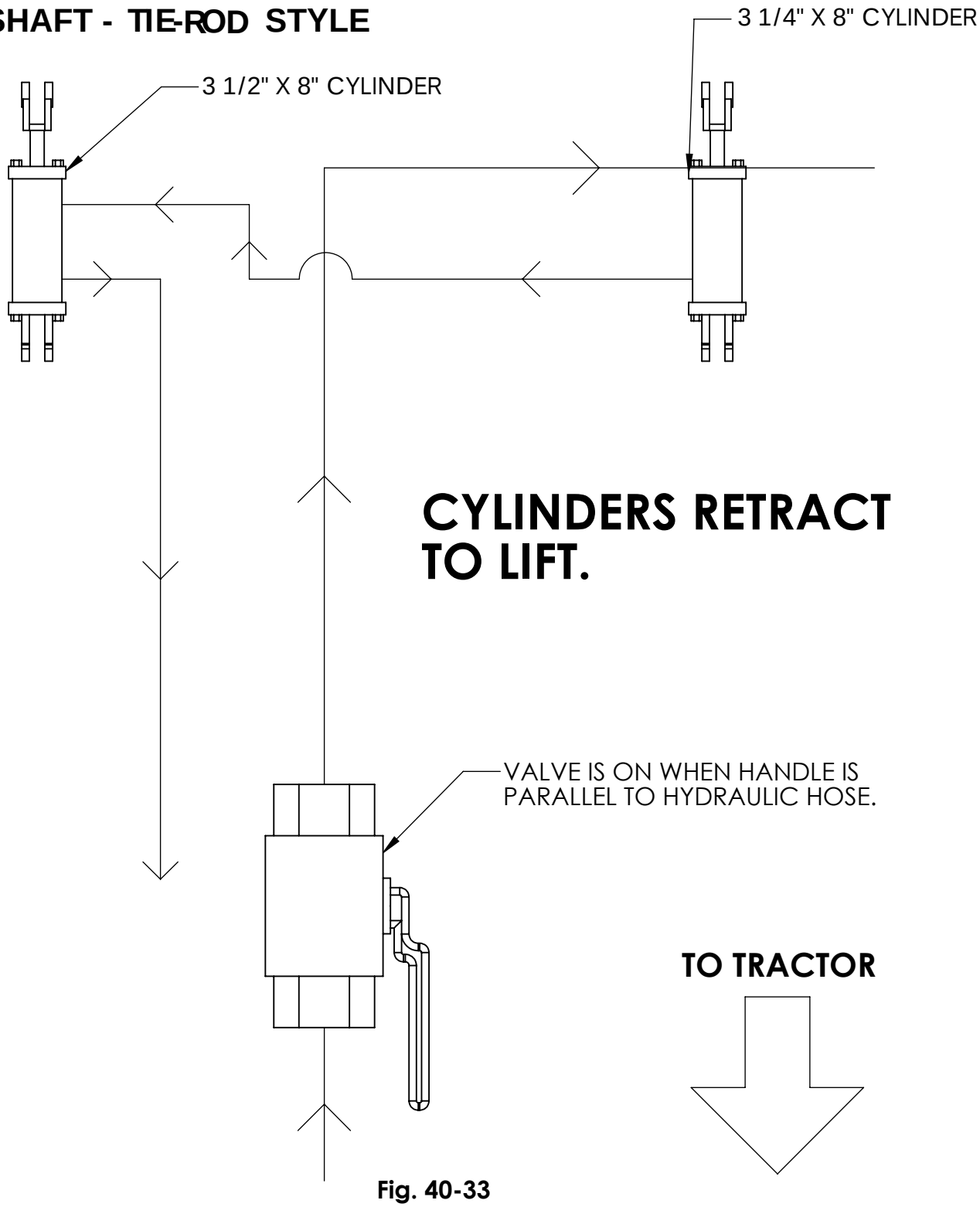


Fig. 40-33

HYDRAULIC CYLINDERS

MODELS 7516, 7518, 7522 BOTH REPHASING ROCKSHAFT - WELDED STYLE

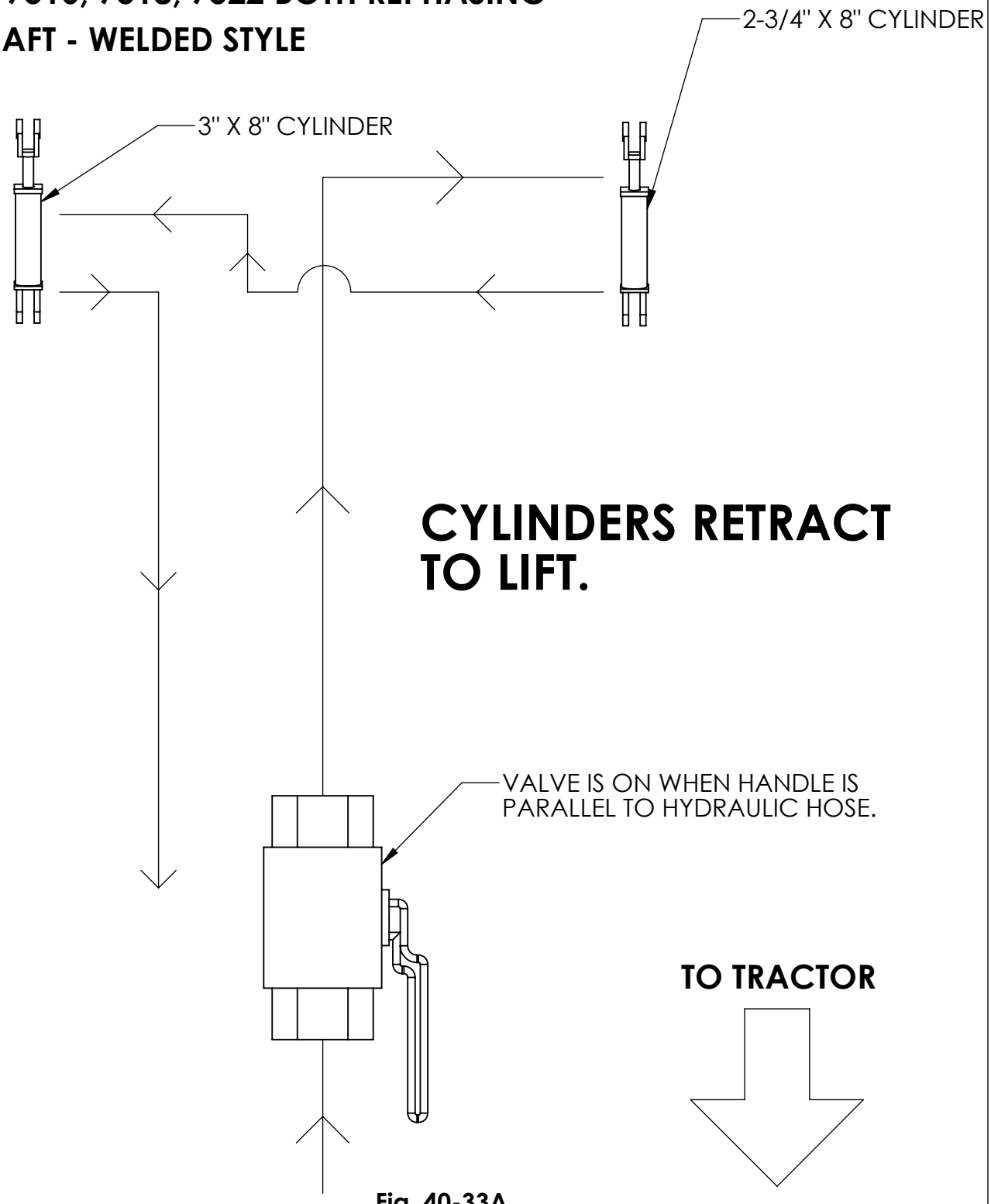


Fig. 40-33A

HYDRAULIC CYLINDERS

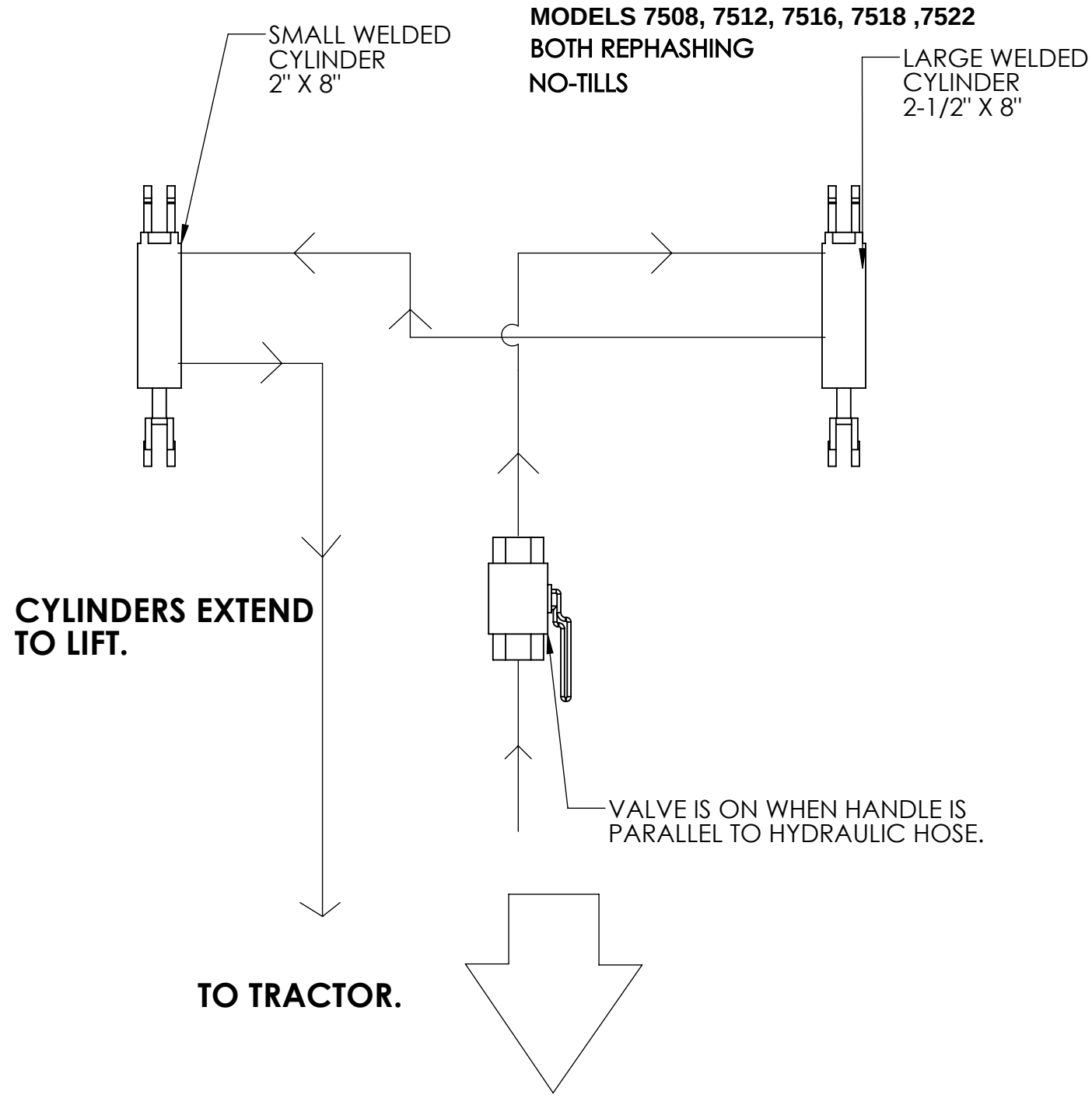


Fig. 40-34

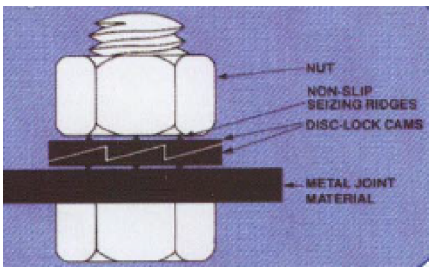
1) BOLT TORQUE

The table shown below provides the correct values for various bolts and cap screws. Tighten all bolts to the torque specified in the chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with same strength bolt.

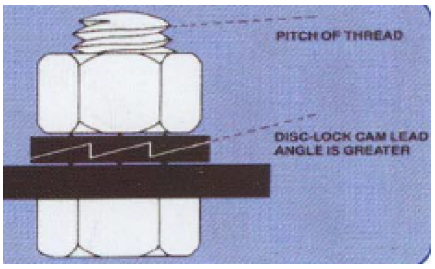
TORQUE SPECIFICATIONS				
BOLT DIAMETER	BOLT TORQUE			
	SAE 5		SAE 8	
	lb-ft	n-m	lb-ft	n-m
1/4"	9	12	12	17
5/16"	19	25	27	36
3/8"	33	45	45	63
1/2"	80	110	115	155
9/16"	115	155	160	217
5/8"	160	215	220	305
3/4"	290	390	400	540
1"	630	850	970	1320

Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual. When using locking elements, increase torque values by 5%. SAE type for bolts and cap screws are identified by their head markings.

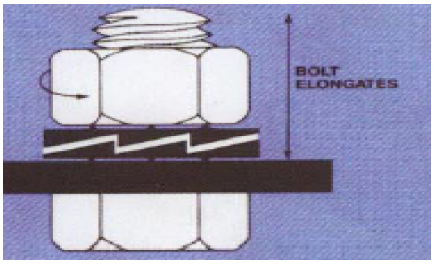
2) DISC-LOCK WASHER INSTALLATION



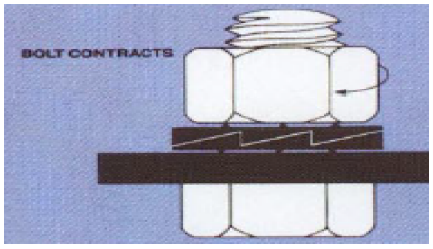
① To install the Disc-Lock Washer, simply mate the cams together and place between the nut and the joint material.



② As the nut is tightened, one half of the Disc-lock Washer is seated to join material and the other to the nut



③ When the bolt elongates due to vibration and shock, the nut will attempt to rotate loose. As one half of the Disc-Lock Washer tries to rotate with the nut, the interlocking cams work against each other. This will maintain the preload and lock the assembly.



④ As the bolt contracts, the inclined planes of the cams cause the nut to rotate back to its original position.

⑤ In common with most fasening devices, Disc-Lock Washer may be used by securing a metal plate to the joint material in such a manner that the metal plate will not rotate.

⑥ If the joint material is not metal, the Disc-Lock Washer may be used by securing a metal plate to the joint material in such a manner that the metal plate will not rotate.

⑦ A torque wrench is not required when installing Disc-Lock Washers.

⑧ An air-gun can be used when installing and removing Disc-Lock Washers.

2) DISC-LOCK WASHER INSTALLATION

(CONTINUED)

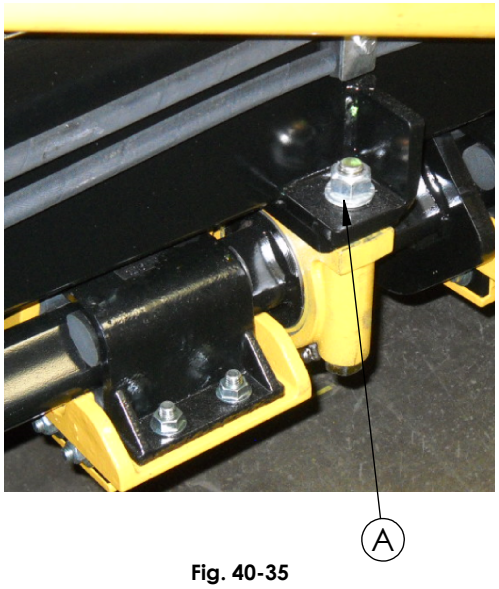


Fig. 40-35

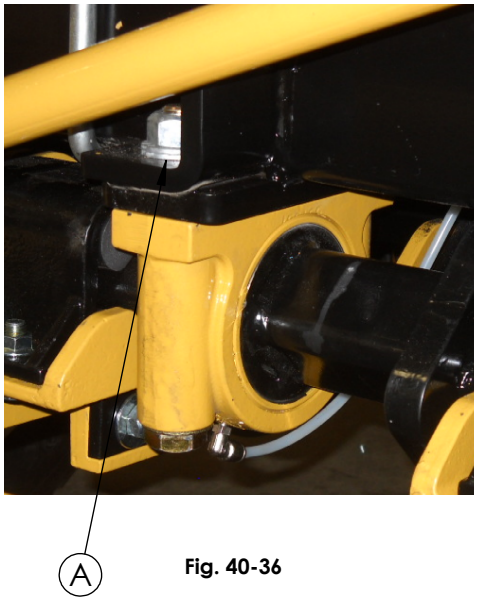


Fig. 40-36

Disc-Lock washers used on ALL pillow blocks

See Page 40-38 For Installation

CHAINS

Chain Name	Chain Part #	Connector Link(s)	Connector Link(s) Part #
Cone Sprocket (39Links)	2040D	Offset & Full Links	2040L, 2040L1
Small Seed Box (37 Links)	2040E	Half Link	2040L2
Picker Wheel (51 Links)	2040C	Full Link	2040L1
Cool Season Box Agitator (17 Links)	2040F	Offset & Full Links	2040L, 2040L1
Cool Season Box Drive (51 Links)	2040XG	Full Link or Offset and Half Links	2040L or 2040L1, 2040L2
OTG Speed Changer-Large (31 Links)	2040OTG1	Offset, Half Link	2040L, 2040L2
OTG Speed Changer-Small (25 Links)	2040OTG2	Offset, Half Link	2040L, 2040L2
OTG Calibration-Input (51 Links)	2040C	Half Link	2040L2
OTG Drive Wheel (39 Links)	2060OTG4	Full Link	2060L1

1) STORAGE & PLACING THE DRILL BACK INTO SERVICE

1) Block the wheels and detach the drill from the tractor.

2) Vacuum the seed boxes.

3) Remove the convoluted seed hoses, clean and store them in a cardboard box.

4) Slide the cool season and small box shifter back and forth.

5) Using an air hose, blow out dust/debris from under the cool season and small box row dividers.

6) Drop the gates on the cool season seed cups to its lowest level. The lever is located on the left side of the seed cup as you face the front of the drill while standing at the rear.

7) Using an air hose, blow all the seed from the boxes, especially the small seed box cups and flutes.

8) Using a screwdriver, clean stems from the transitions.

9) Clean the drill with a high-pressure washer. DO NOT directly spray on hubs that have bearings installed such as the no-till hubs or double disk opener blades.

10) Using an air hose, blow all the water from the drill, including the inside of the box.

11) Paint all bare metal and rust spots. Use Cat Yellow Paint (Cat #4C-420) and Rust-Oleum Professional High Performance Enamel (Rust-Oleum gloss black #7579).

12) Spray all moving parts (sprockets, hinges, chains, press wheel bearings, etc) with a silicone based lubricant. Check seed box lid hinges for accumulation of dirt & debris. Clean as needed and apply LPS Silicone Lubricant, WD-40, or an equivalent lubricant. Replacement brass hinge pins (#1038HP) and two 1/16" x 1/2" cotter pins (part #CP116-6) can be ordered.

13) Grease clutch, lockout hub, rockshaft inner bearings, greasebank, No-Till hubs, No-Till shanks, calibration shaft, parallelogram pins, as applicable. See Page 40-25 for lubricants & 40-27 for zirk locations.

14) Clean & repack end wheel bearings.

15) Torque wheel nut lugs to 130-135 lbs.

16) Slide clutch collar aside and oil the clutch tripper. See page 40-18.

17) Clean, service, and adjust disc blades for proper alignment. See page 40-14.

18) Clean hydraulic hose disconnects & install rubber protectors.

19) Check hitch bolt & safety chain attachment.

20) Check, adjust and lubricate roller chains for tension & alignment.

21) Store in shed or cover with tarp.

TAIL LIGHTS

A	STRAP	E	NUT UNF
B	LOCK WASHER	F	RED LEAD WIRE
C	HALF NUT	G	BROWN LEAD WIRE
D	MACHINE WASHER	H	GROUND WIRE

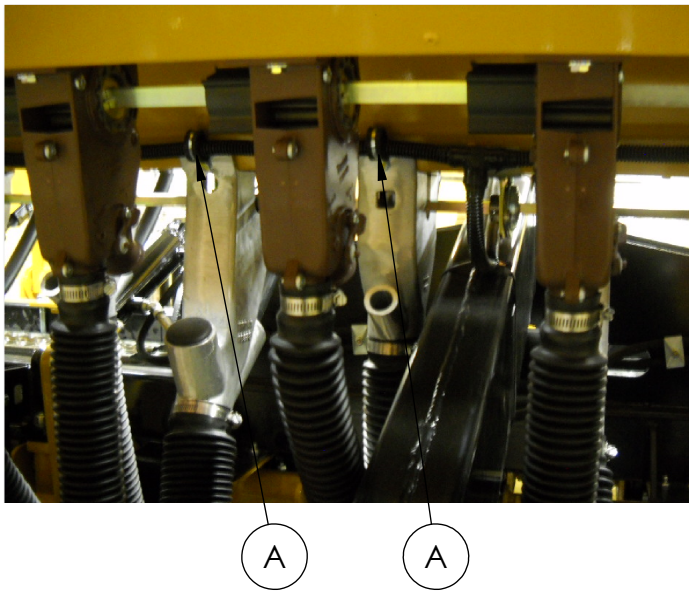


Fig. 40-37

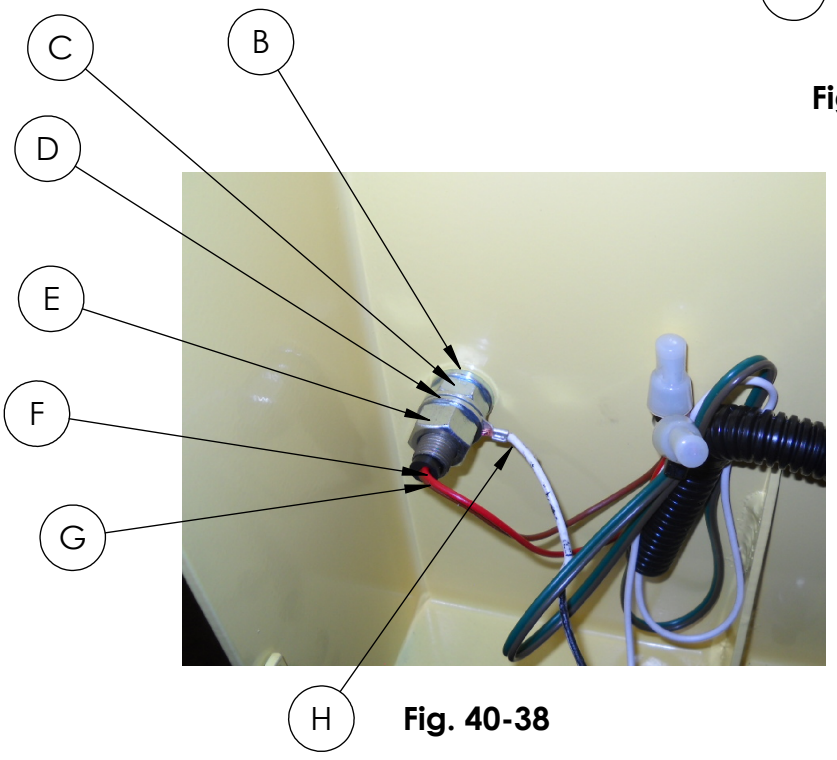


Fig. 40-38

The tail lights are bolted on the inside of both drive and non-drive sides. After inserting the mounting stud, a 1/2" lock washer (B) is installed on followed by a 1/2" half nut UNF. Then 2 machine washers (D) are installed followed by a 1/2" full nut UNF. The system is grounded in between the washers (D) by the white wire (H). Two lead wires (F & G) exit through the mounting stud. The red wire (F) is for the turn signals while the brown wire (G) is for the tail light. See Fig. 40-39 for connection.

The hose runs behind the seed cups, attached to every other cup by straps. The 2 seed cups closest to main frame (on each side) are an exception and each have a strap of their own as shown in Fig. 40-37.

TAIL LIGHTS

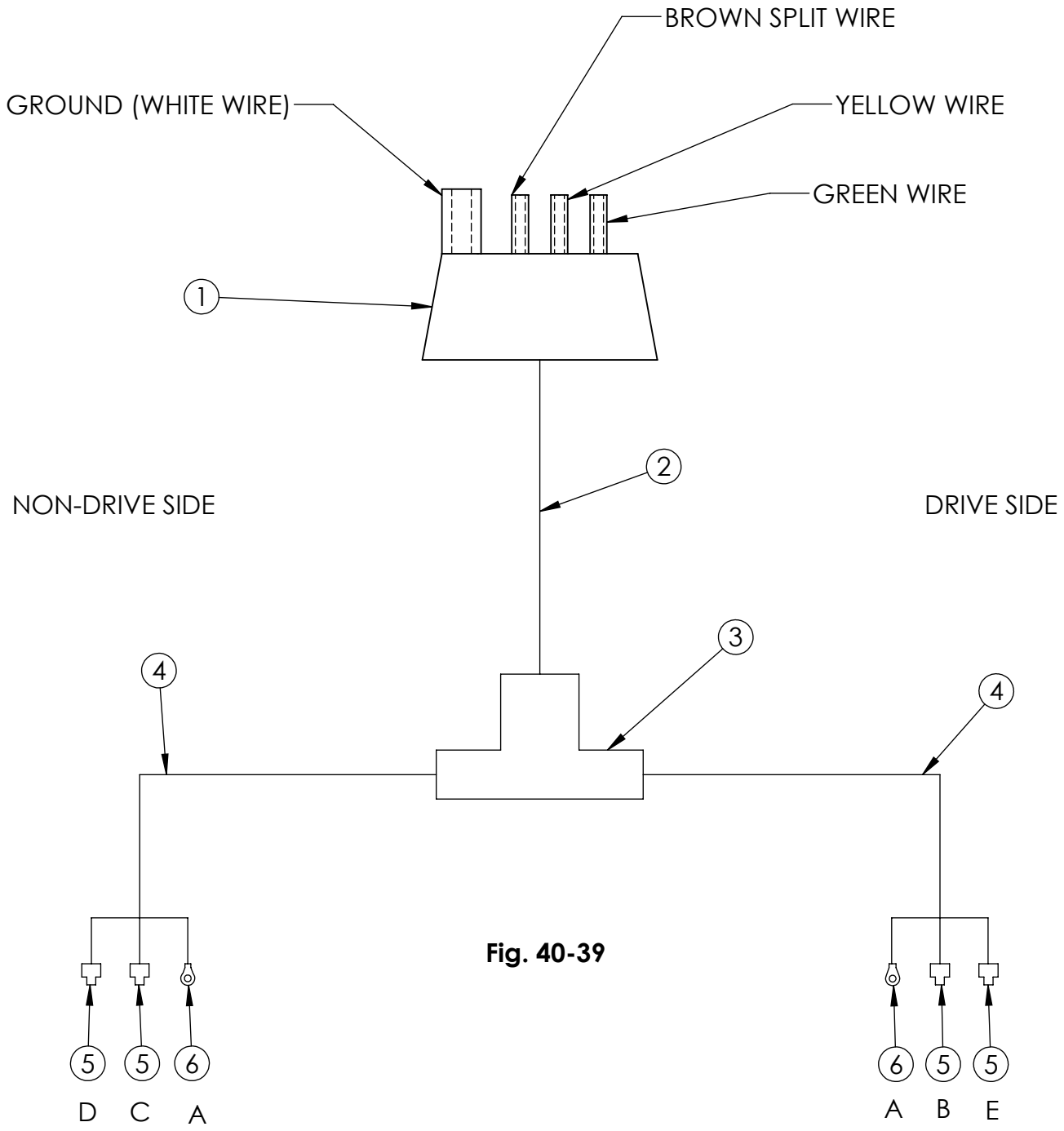


Fig. 40-39

A - WHITE WIRE - GROUND
B - GREEN WIRE - RIGHT TURN (CONNECT TO RED WIRE)
C - YELLOW WIRE - LEFT TURN (CONNECT TO RED WIRE)
D - BROWN/YELLOW WIRE - TAIL LIGHT LEFT (CONNECT TO BROWN WIRE)
E - BROWN/GREEN WIRE - TAIL LIGHT RIGHT (CONNECT TO BROWN WIRE)

TAIL LIGHTS

ITEM NO.	PART NUMBER	DESCRIPTION
1	5575920	4 Wire Trailer Harness
2	5575921	Corrugated Loom-1/2" Non-Split 240: Length Note: Same For All Models
3	5575922	Tee Fitting-1/2"
4	5575923 55759231 55759233 55759232 55759234	Corrugated Loom-1/2" Non-Split 38" Length Corrugated Loom-1/2" Non-Split 64" Length Corrugated Loom-1/2" Non-Split 80" Length Corrugated Loom-1/2" Non-Split 96" Length Corrugated Loom-1/2" Non-Split 112" Length
5	5575924	Closed End Connector
6	5575925	16-14 GA 1/2" Ring Terminal Non-Insulated (Waytek #31207)