



1tRIPr & TRU-aPLYr
STRIP-TILLAGE TOOL

1tRIPr & TRU-APLYr 12T STRIP-TILLAGE TOOL MAINTENANCE MANUAL

1tRIPr & TRU-APLYr 9T STRIP-TILLAGE TOOL MAINTENANCE MANUAL

STRIP-TILLAGE

A TOUGH ACT TO **FOLLOW**

Unverferth
Manufacturing Company, Inc.

SECTION IV

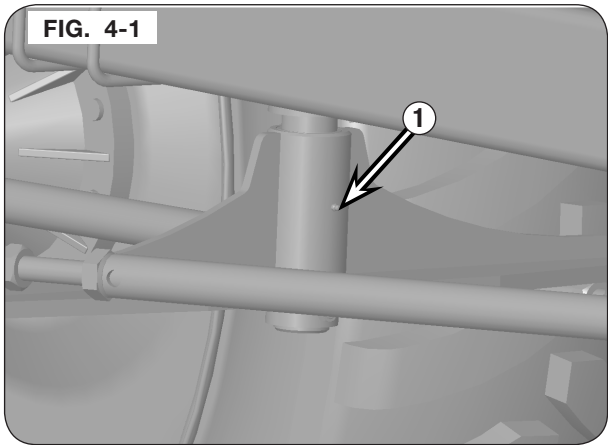
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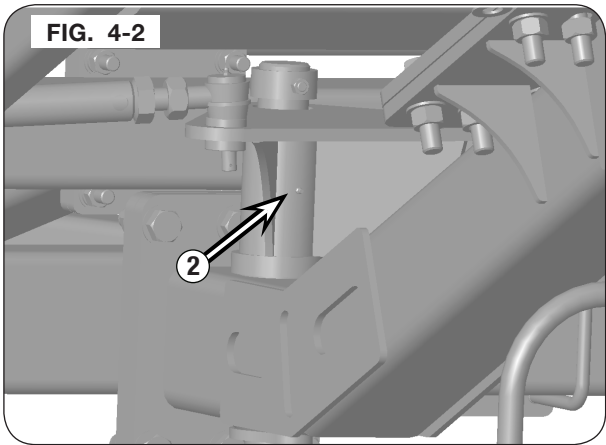
Lubrication

Lubrication Service Intervals			
Item		# of Grease Points	Interval (Hours)
1	Front Steering Knuckle	1	50
2	Rear Steering Knuckle	1	50
3	Steering Linkages	8	50
4	Hub Grease Fittings	2	50

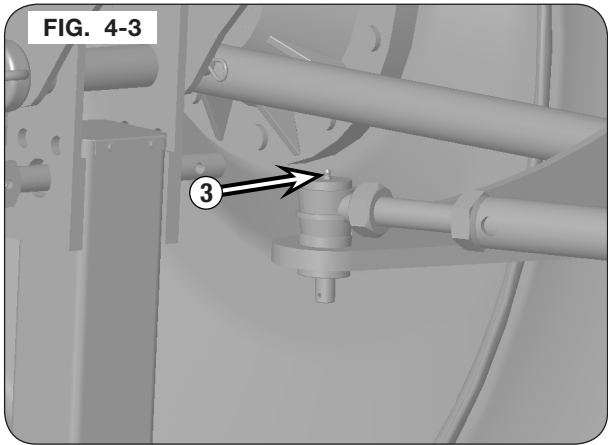
Front Steering Knuckle



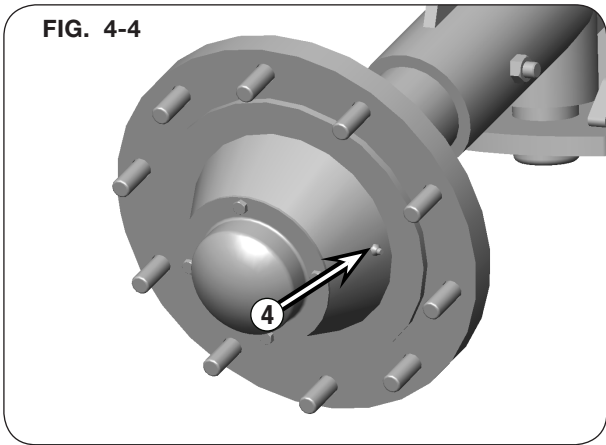
Rear Steering Knuckle



Steering Linkages



Hub Grease Points

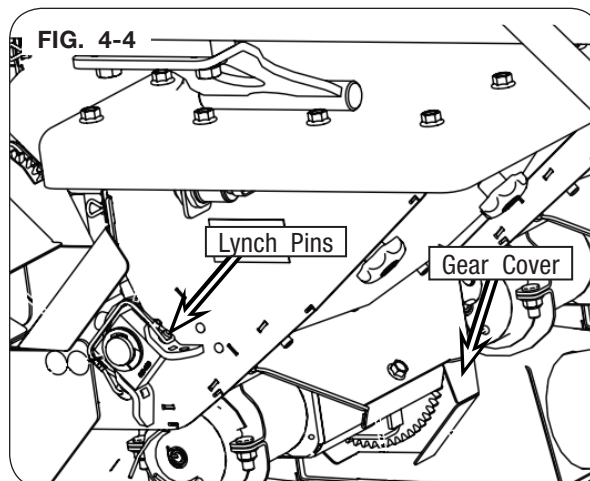
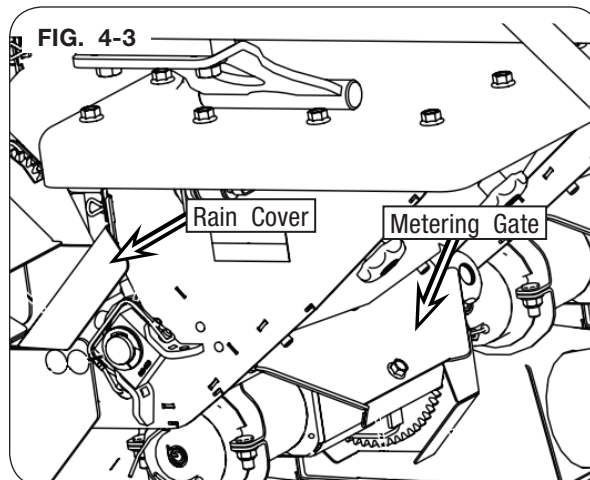


Metering Housing Cleaning

WARNING

- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- KEEP HANDS CLEAR OF PINCH POINT AREAS.

1. Park the unit on a firm, level surface, then set the tractor's parking brake and remove the key.
2. Close all metering gates and remove the rain shields. (Fig. 4-3)
3. Remove the gear cover, then remove the lynch pins. (Fig. 4-4)
4. Rotate the gear until clear of the wheel housing, then remove the meter assembly.
5. Clean and inspect the meter housing, then inspect for damaged or worn part. Repair or replace as needed.
6. Using air, clean the meter housing assembly.
7. Align the sprockets, then install the meter into the meter box.
8. Rotate the meter until clear of the wheel housing, then latch both Lynch pins, and install all covers. (Fig. 4-3 and 4-4)

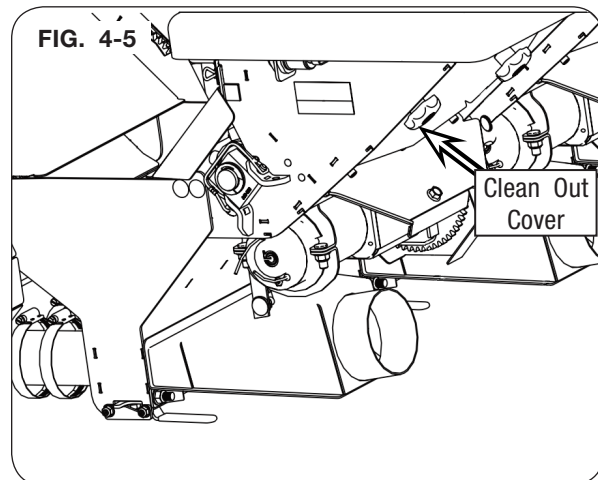
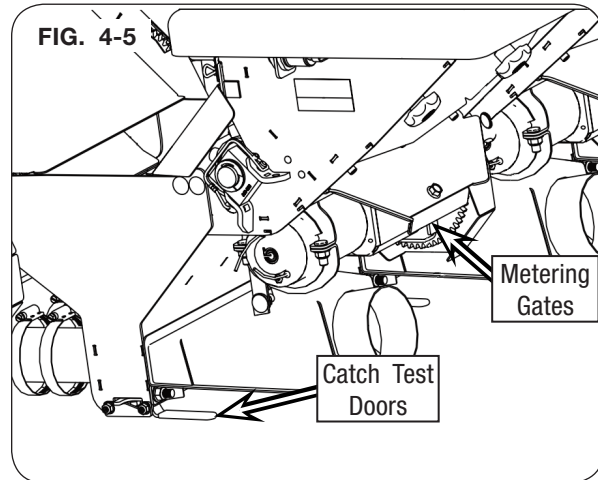


Emptying Hoppers

WARNING

- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- KEEP HANDS CLEAR OF PINCH POINT AREAS.

1. Park the unit on a firm, level surface, then set the tractor's parking brake and remove the key.
2. Place a large enough container under the implement to catch the remaining product.
3. Close all metering gates, then open the the catch test doors to release the remaining product. (Fig. 4-5)
4. Remove the meters, see “Meter Housing Cleaning” on the previous page.
5. Remove the clean out cover, then remove any remaining product. (Fig. 4-6)
6. Once the hoppers are empty close the catch test doors, and install the meters.
7. Install and secure all covers. (Fig. 4-5 and 4-6)



Storage

Do the following before placing the implement in storage:

1. Remove dirt and trash which could cause rusting.
2. Repaint any chipped or scraped areas.
3. Inspect for damage or worn parts, replace before next season.
4. Store implement inside, away from livestock.
5. Replace all worn, torn or faded decals and reflectors.

Troubleshooting

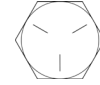
Problem	Possible Cause	Corrective Action
Product being applied is lower than expected	Meter housing assembly is loosing air.	Check fan pressure. (28 in. of water) Check air hoses for leaks.
	Restricted product flow.	Product buildup from moisture. Check meter housing.
	Damaged sprockets or bearings creating slippage.	Repair or replace components as necessary.
Fertilizer flow monitor does not turn on	Inspect power cable for damage.	Repair or replace components as necessary.
	Inspect condition of fuse.	
No communication from one sensor (no show on F1 list and/or alarm with orange LED)	Sensor not connected.	Add sensor to the network with function F5.
	Monitor has a low battery.	Check power source.
	There is a faulty sensor.	Replace sensor as necessary.
Maneuver state occurs during normal operation	Flow rate settings incorrect.	Inspect the flow rate.
	Section(s) left in off position.	Inspect sections and ensure all sections are in the ON position.

Complete Torque Chart

Capscrews - Grade 5

NOTE:

- Grade 5 capscrews can be identified by three radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.



SIZE	FOOT POUNDS	NEWTON METERS
1/4-20	8-10	11-13
1/4-28	9-11	12-15
5/16-18	15-17	20-23
5/16-24	17-19	23-26
3/8-16	25-28	34-38
3/8-24	28-31	38-42
7/16-14	40-45	54-61
7/16-20	45-50	61-68
1/2-13	62-68	84-92
1/2-20	68-75	92-102
9/16-12	90-98	122-133
9/16-18	100-110	134-148
5/8-11	120-135	162-183
5/8-18	124-137	168-186
3/4-10	200-220	270-300
3/4-16	210-230	285-310
7/8-9	330-350	425-475
7/8-14	360-380	460-515
1-8	500-525	675-710
1-14	540-560	730-760
1 1/8-7	600-635	815-860
1 1/8-12	665-700	920-950
1 1/4-7	850-895	1150-1215
1 1/4-12	940-990	1275-1340
1 3/8-6	1125-1175	1525-1590
1 3/8-12	1280-1335	1735-1810
1 1/2-6	1500-1560	2035-2115
1 1/2-12	1685-1755	2285-2380

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart (continued)

Capscrews - Grade 8

NOTE:

- Grade 8 capscrews can be identified by six radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.



SIZE	FOOT POUNDS	NEWTON METERS
5/16-18	20-22	27-30
5/16-24	21-23	28-31
3/8-16	35-39	47-53
3/8-24	36-41	49-55
7/16-14	54-58	73-78
7/16-20	55-60	75-80
1/2-13	82-88	110-120
1/2-20	94-99	125-135
9/16-12	127-134	170-180
9/16-18	147-155	199-210
5/8-11	160-170	215-230
5/8-18	165-175	225-235
3/4-10	280-295	380-400
3/4-16	330-365	445-495
7/8-9	410-430	555-580
7/8-14	420-440	570-595
1-8	630-650	850-880
1-14	680-700	920-950
1 1/8-7	900-930	1220-1260
1 1/8-12	930-950	1260-1290
1 1/4-7	1250-1300	1695-1760
1 1/4-12	1280-1320	1735-1790

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart

Metric Capscrews - Grade 8.8

NOTE:

- Grade 8.8 capscrews can be identified by the number “8.8” on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.

SIZE	INCH POUNDS	FOOT POUNDS	NEWTON METERS
M6	79-100		8.9-11.3
M8	194-243		22-27.5
M10		32-40	43-55
M12		55-70	75-95
M14		88-110	120-150
M16		140-175	190-240
M18		195-245	265-330
M20		275-350	375-475
M22		375-480	510-650
M24		480-600	650-820
M27		700-885	950-1200
M30		950-1200	1290-1630
M33		1300-1625	1750-2200
M36		1650-2100	2250-2850

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart

Metric Capscrews - Grade 10.9

NOTE:

- Grade 10.9 capscrews can be identified by the number “10.9” on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.

SIZE	INCH POUNDS	FOOT POUNDS	NEWTON METERS
M6	115-146		13-16.5
M8		23.5-29.5	32-40
M10		46-59	63-80
M12		80-105	110-140
M14		130-165	175-220
M16		200-255	275-350
M18		275-350	375-475
M20		390-500	530-675
M22		535-680	725-920
M24		680-850	920-1150
M27		1000-1250	1350-1700
M30		1350-1700	1850-2300
M33		1850-2325	2500-3150
M36		2350-3000	3200-4050

IMPORTANT

- Follow these torque recommendations except when specified in text.

Hydraulic Fittings - Torque and Installation

Tightening O-Ring Fittings

1. Inspect components for damage or contamination. Do not connect any other type of fitting to an O-ring fitting.
2. For adjustable fittings, insure the jam nut and washer are fully backed up.
3. Lubricate the O-ring and threads on the fitting.
4. Turn the fitting into the port until it is finger tight.
5. For adjustable fittings, set in the desired position.
6. Using a wrench, torque the fitting to the value in the below table. For adjustable fittings the jam nut will be tightened.

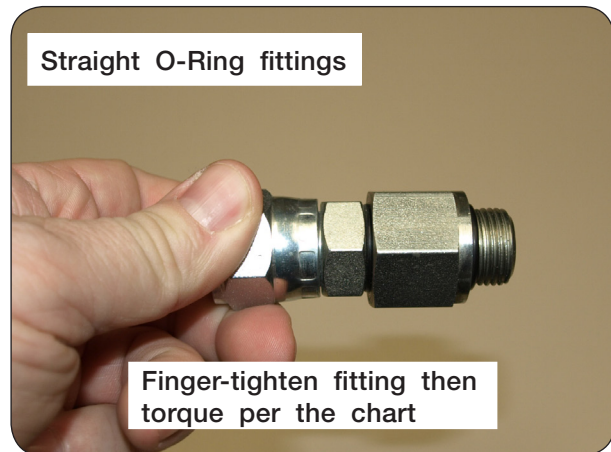
Note: Never use a power tool to install a fitting.

Dash Size	Thread Size	Straight Stud Torque (Ft-Lbs)	Adjustable Stud Torque (Ft-Lbs)
-5	1/2-20	14-19	10-14
-6	9/16-18	18-24	12-16
-8	3/4-16	27-43	20-30
-10	7/8-14	36-48	30-36
-12	1-1/16-12	65-75	44-54
-14	1-3/16-12	75-99	53-70
-16	1-5/16-12	85-123	59-80
-20	1-5/8"-12	115-161	75-100
-24	1-7/8"-12	125-170	105-125

O-Ring fittings

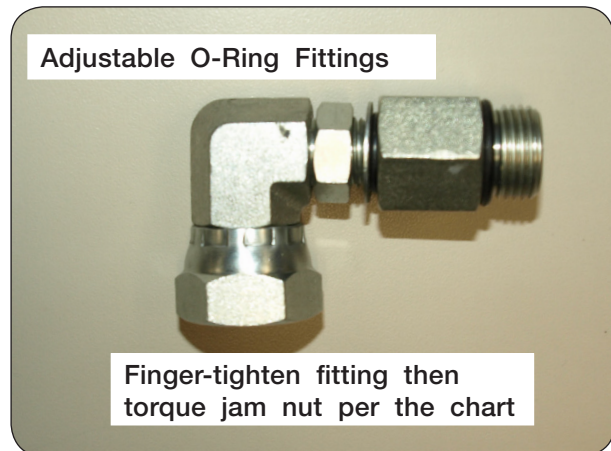


Straight O-Ring fittings



Finger-tighten fitting then torque per the chart

Adjustable O-Ring Fittings



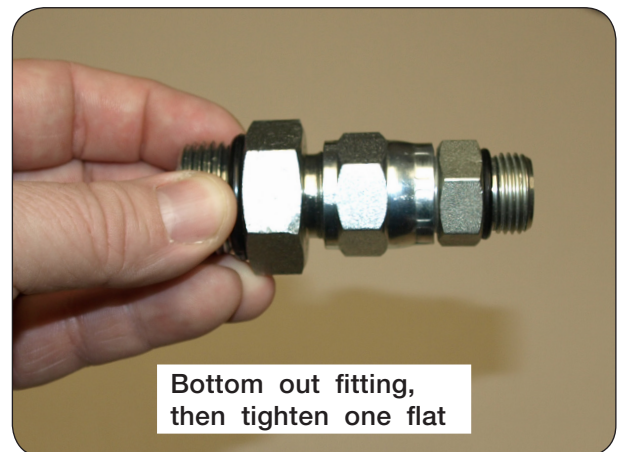
Finger-tighten fitting then torque jam nut per the chart

Hydraulic Fittings - Torque and Installation

Tightening JIC Fittings

1. Inspect all components for damage or contamination. Do not connect any other type of fitting to a JIC fitting.
2. Lubricate the threads.
3. Turn the fitting into the port until it bottoms out.
4. Use one wrench on the fixed hex on the hose to prevent twisting and a second on the swivel. Tighten the fitting another 60 degrees (or one flat)

Note: Never use a power tool to install a fitting



SECTION IV

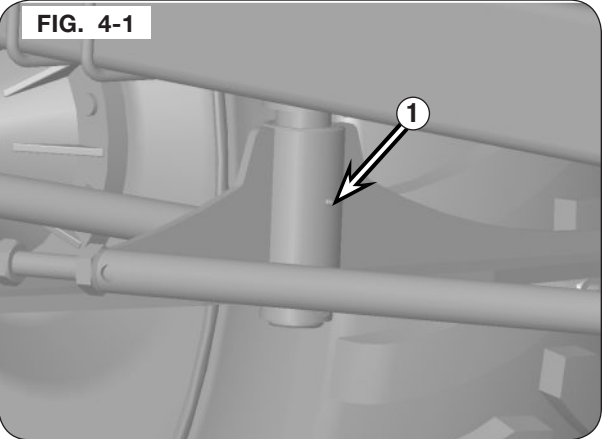
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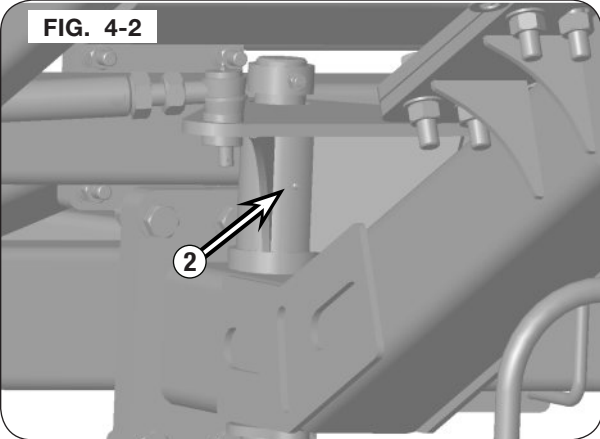
Lubrication

Lubrication Service Intervals			
Item		# of Grease Points	Interval (Hours)
1	Front Steering Knuckle	1	50
2	Rear Steering Knuckle	1	50
3	Steering Linkages	8	50

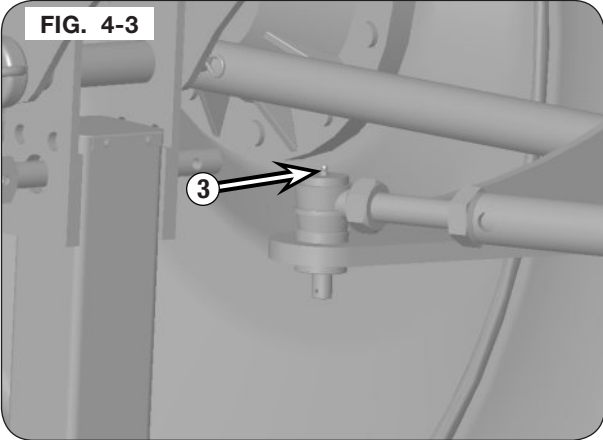
Front Steering Knuckle



Rear Steering Knuckle



Steering Linkages

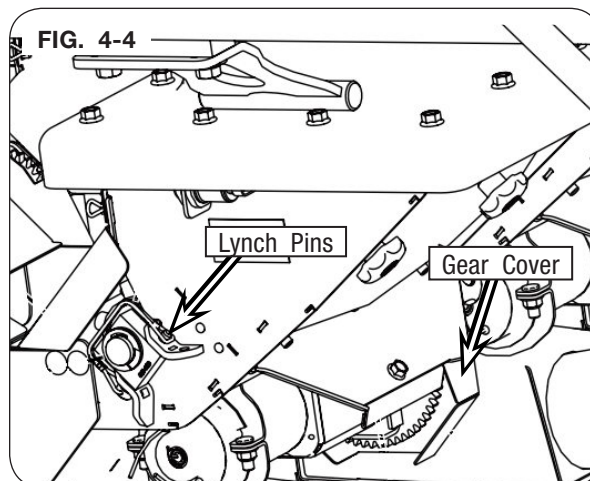
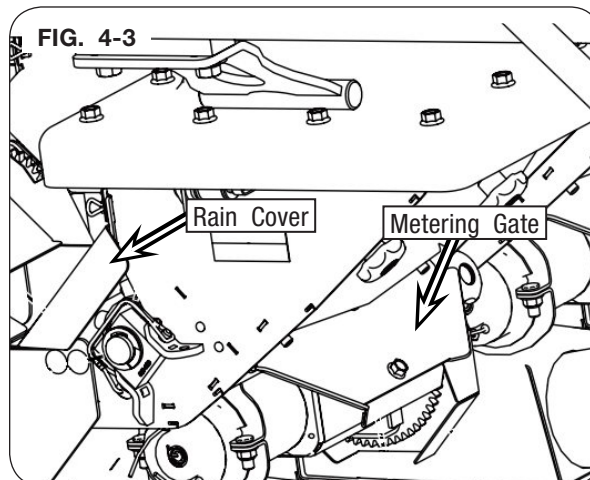


Metering Housing Cleaning

WARNING

- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- KEEP HANDS CLEAR OF PINCH POINT AREAS.

1. Park the unit on a firm, level surface, then set the tractor's parking brake and remove the key.
2. Close all metering gates and remove the rain shields. (Fig. 4-3)
3. Remove the gear cover, then remove the lynch pins. (Fig. 4-4)
4. Rotate the gear until clear of the wheel housing, then remove the meter assembly.
5. Clean and inspect the meter housing, then inspect for damaged or worn part. Repair or replace as needed.
6. Using air, clean the meter housing assembly.
7. Align the sprockets, then install the meter into the meter box.
8. Rotate the meter until clear of the wheel housing, then latch both Lynch pins, and install all covers. (Fig. 4-3 and 4-4)

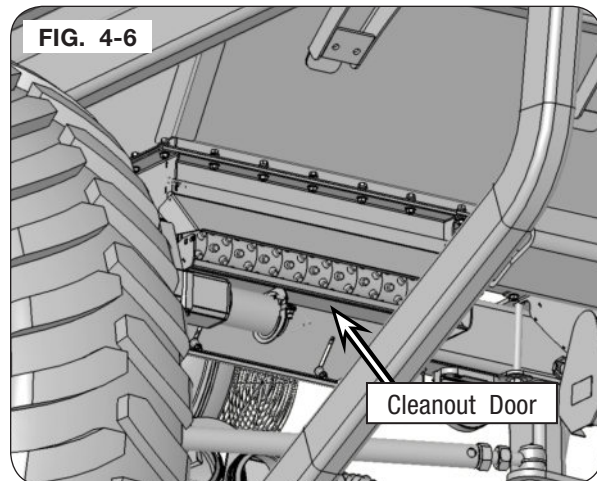
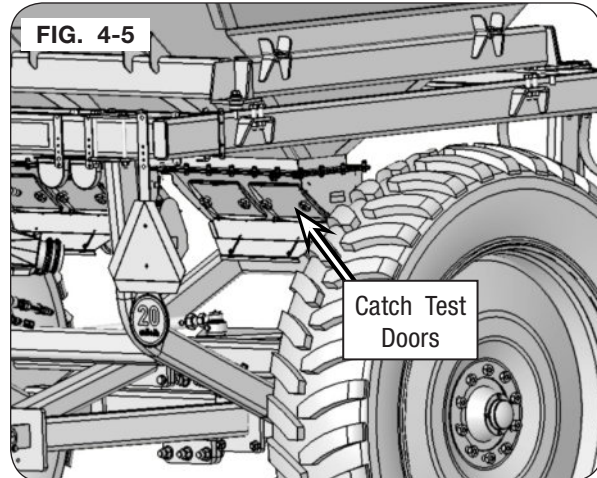


Emptying Hoppers

WARNING

- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- KEEP HANDS CLEAR OF PINCH POINT AREAS.

1. Park the unit on a firm, level surface, then set the tractor's parking brake and remove the key.
2. Place a large enough container under the implement to catch the remaining product.
3. Close all metering gates, then open the the catch test doors to release the remaining product. (Fig. 4-5)
4. Remove the meters, see “Meter Housing Cleaning” on the previous page.
5. Remove the clean out cover, then remove any remaining product. (Fig. 4-6)
6. Once the hoppers are empty close the catch test doors, and install the meters.
7. Install and secure all covers. (Fig. 4-5 and 4-6)



Storage

Do the following before placing the implement in storage:

1. Remove dirt and trash which could cause rusting.
2. Repaint any chipped or scraped areas.
3. Inspect for damage or worn parts, replace before next season.
4. Store implement inside, away from livestock.
5. Replace all worn, torn or faded decals and reflectors.

Troubleshooting

Problem	Possible Cause	Corrective Action
Product being applied is lower than expected	Meter housing assembly is loosing air.	Check fan pressure. (28 in. of water) Check air hoses for leaks.
	Restricted product flow.	Product buildup from moisture. Check meter housing.
	Damaged sprockets or bearings creating slippage.	Repair or replace components as necessary.
Fertilizer flow monitor does not turn on	Inspect power cable for damage.	Repair or replace components as necessary.
	Inspect condition of fuse.	
No communication from one sensor (no show on F1 list and/or alarm with orange LED)	Sensor not connected.	Add sensor to the network with function F5.
	Monitor has a low battery.	Check power source.
	There is a faulty sensor.	Replace sensor as necessary.
Maneuver state occurs during normal operation	Flow rate settings incorrect.	Inspect the flow rate.
	Section(s) left in off position.	Inspect sections and ensure all sections are in the ON position.

Complete Torque Chart

Capscrews - Grade 5

NOTE:

- Grade 5 capscrews can be identified by three radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.



SIZE	FOOT POUNDS	NEWTON METERS
1/4-20	8-10	11-13
1/4-28	9-11	12-15
5/16-18	15-17	20-23
5/16-24	17-19	23-26
3/8-16	25-28	34-38
3/8-24	28-31	38-42
7/16-14	40-45	54-61
7/16-20	45-50	61-68
1/2-13	62-68	84-92
1/2-20	68-75	92-102
9/16-12	90-98	122-133
9/16-18	100-110	134-148
5/8-11	120-135	162-183
5/8-18	124-137	168-186
3/4-10	200-220	270-300
3/4-16	210-230	285-310
7/8-9	330-350	425-475
7/8-14	360-380	460-515
1-8	500-525	675-710
1-14	540-560	730-760
1 1/8-7	600-635	815-860
1 1/8-12	665-700	920-950
1 1/4-7	850-895	1150-1215
1 1/4-12	940-990	1275-1340
1 3/8-6	1125-1175	1525-1590
1 3/8-12	1280-1335	1735-1810
1 1/2-6	1500-1560	2035-2115
1 1/2-12	1685-1755	2285-2380

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart (continued)

Capscrews - Grade 8

NOTE:

- Grade 8 capscrews can be identified by six radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.



SIZE	FOOT POUNDS	NEWTON METERS
5/16-18	20-22	27-30
5/16-24	21-23	28-31
3/8-16	35-39	47-53
3/8-24	36-41	49-55
7/16-14	54-58	73-78
7/16-20	55-60	75-80
1/2-13	82-88	110-120
1/2-20	94-99	125-135
9/16-12	127-134	170-180
9/16-18	147-155	199-210
5/8-11	160-170	215-230
5/8-18	165-175	225-235
3/4-10	280-295	380-400
3/4-16	330-365	445-495
7/8-9	410-430	555-580
7/8-14	420-440	570-595
1-8	630-650	850-880
1-14	680-700	920-950
1 1/8-7	900-930	1220-1260
1 1/8-12	930-950	1260-1290
1 1/4-7	1250-1300	1695-1760
1 1/4-12	1280-1320	1735-1790

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart

Metric Capscrews - Grade 8.8

NOTE:

- Grade 8.8 capscrews can be identified by the number “8.8” on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.

SIZE	INCH POUNDS	FOOT POUNDS	NEWTON METERS
M6	79-100		8.9-11.3
M8	194-243		22-27.5
M10		32-40	43-55
M12		55-70	75-95
M14		88-110	120-150
M16		140-175	190-240
M18		195-245	265-330
M20		275-350	375-475
M22		375-480	510-650
M24		480-600	650-820
M27		700-885	950-1200
M30		950-1200	1290-1630
M33		1300-1625	1750-2200
M36		1650-2100	2250-2850

IMPORTANT

- Follow these torque recommendations except when specified in text.

Complete Torque Chart

Metric Capscrews - Grade 10.9

NOTE:

- Grade 10.9 capscrews can be identified by the number “10.9” on the head.
- For wheel torque requirements, refer to Wheels and Tires.
- Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.

SIZE	INCH POUNDS	FOOT POUNDS	NEWTON METERS
M6	115-146		13-16.5
M8		23.5-29.5	32-40
M10		46-59	63-80
M12		80-105	110-140
M14		130-165	175-220
M16		200-255	275-350
M18		275-350	375-475
M20		390-500	530-675
M22		535-680	725-920
M24		680-850	920-1150
M27		1000-1250	1350-1700
M30		1350-1700	1850-2300
M33		1850-2325	2500-3150
M36		2350-3000	3200-4050

IMPORTANT

- *Follow these torque recommendations except when specified in text.*

Hydraulic Fittings - Torque and Installation

Tightening O-Ring Fittings

1. Inspect components for damage or contamination. Do not connect any other type of fitting to an O-ring fitting.
2. For adjustable fittings, insure the jam nut and washer are fully backed up.
3. Lubricate the O-ring and threads on the fitting.
4. Turn the fitting into the port until it is finger tight.
5. For adjustable fittings, set in the desired position.
6. Using a wrench, torque the fitting to the value in the below table. For adjustable fittings the jam nut will be tightened.

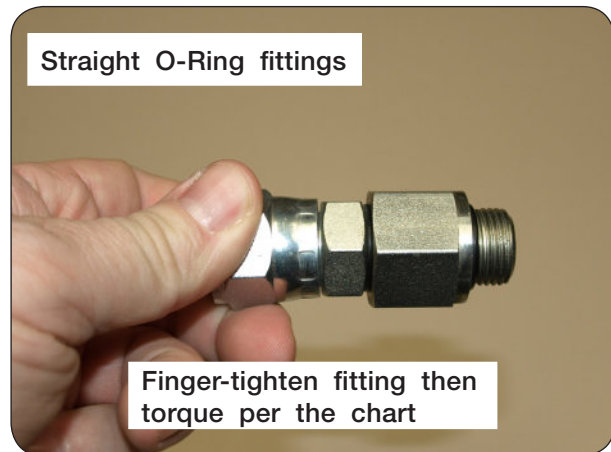
Note: Never use a power tool to install a fitting.

Dash Size	Thread Size	Straight Stud Torque (Ft-Lbs)	Adjustable Stud Torque (Ft-Lbs)
-5	1/2-20	14-19	10-14
-6	9/16-18	18-24	12-16
-8	3/4-16	27-43	20-30
-10	7/8-14	36-48	30-36
-12	1-1/16-12	65-75	44-54
-14	1-3/16-12	75-99	53-70
-16	1-5/16-12	85-123	59-80
-20	1-5/8"-12	115-161	75-100
-24	1-7/8"-12	125-170	105-125

O-Ring fittings

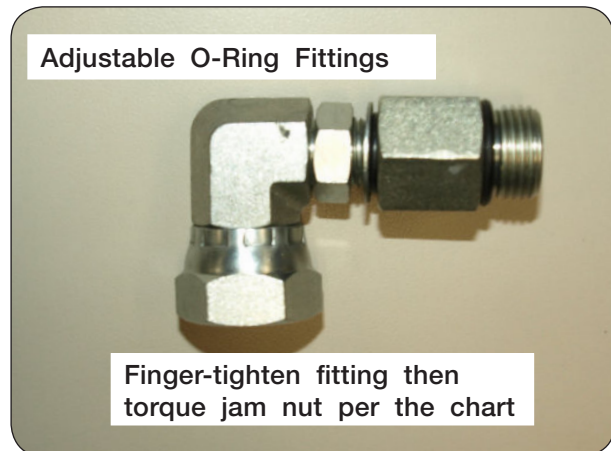


Straight O-Ring fittings



Finger-tighten fitting then torque per the chart

Adjustable O-Ring Fittings



Finger-tighten fitting then torque jam nut per the chart

Hydraulic Fittings - Torque and Installation

Tightening JIC Fittings

1. Inspect all components for damage or contamination. Do not connect any other type of fitting to a JIC fitting.
2. Lubricate the threads.
3. Turn the fitting into the port until it bottoms out.
4. Use one wrench on the fixed hex on the hose to prevent twisting and a second on the swivel. Tighten the fitting another 60 degrees (or one flat)

Note: Never use a power tool to install a fitting

