

OPERATOR'S MANUAL

L040 SERIES OFFSET DISC



Turfline

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Tufline dealer. Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists in the Owner's/Operator's Manual are completed before releasing equipment to the owner.

The dealer must complete the Warranty Registration and return to Tufline.

TO THE OWNER:

Read this manual before operating your Tufline equipment. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all the adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the equipment.

For service, your authorized Tufline dealer has trained mechanics, genuine Tufline service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine Tufline service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

Model: _____ **Date of Purchase:** _____

Serial Number: (see Safety Decal section for location) _____

Provide this information to your dealer to obtain correct repair parts.

Throughout this manual, the term **IMPORTANT** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION**, **WARNING** and **DANGER** are used in conjunction with the Safety-Alert Symbol, (a triangle with an exclamation mark), to indicate the degree of hazard for items of personal safety.



This Safety-Alert Symbol indicates a hazard and means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

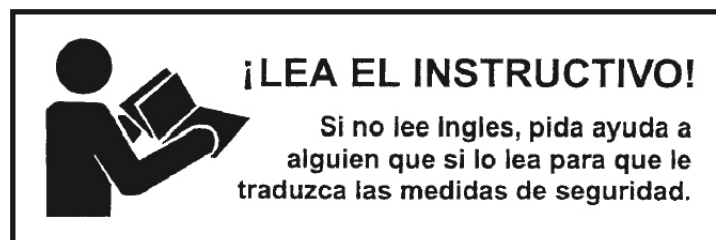
IMPORTANT NOTE

Indicates that failure to observe can cause damage to equipment.

Indicates helpful information.

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GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your Offset Disc Harrow. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance.

These instructions have been compiled from field experience and engineering data. Some information may be general in nature, due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to

your particular situation.

The illustrations and data used in this manual were current at the time of printing. However, due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

Throughout this manual, references are made to right and left direction. These are determined by standing behind the tractor facing the direction of forward travel.

NOTES

SPECIFICATIONS

Model #	Blades	Spacing	Cut Wldth	Weight
LO4091622	16-22"	9"	6'	1500#
LO4091624	16-24"	9"	6'	1725#
LO4091822	18-22"	9"	6' 8"	1572#
LO4091824	18-24"	9"	6' 8"	1830#
LO4092022	20-22"	9"	7' 6"	1716#
LO4092024	20-24"	9"	7' 6"	2018#
LO40101622	16-22"	10 1/2"	6' 10"	1592#
LO40101624	16-24"	10 1/2 "	6' 10"	1848#
LO4092222	22-22"	9"	8' 4"	1914#
LO4092224	22-24"	9"	8' 4"	2150#
LO4092422	24-22"	9"	9'	2089#
LO4092424	24-24"	9"	9'	2362#

SAFETY DECALS

**ATTENTION! BECOME ALERT! YOUR
SAFETY IS INVOLVED!**

**FAILURE TO FOLLOW THESE INSTRUCTIONS
COULD RESULT IN SERIOUS INJURY OR
DEATH**

Replace Decals Immediately If Damaged!

SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH

Replace Decals Immediately If Damaged!




⚠ WARNING

CRUSHING AND PINCHING HAZARD

- Be extremely careful handling various parts of the machine. They are extremely heavy and hands, fingers, feet and other body parts could be crushed or pinched between tractor and implement.
- Operate tractor controls from tractor seat only.

- Do not stand between tractor and implement when tractor is in gear.
- Make sure parking brake is engaged before going between tractor and implement.
- Stand clear of machine when in operation or being raised or lowered.

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①
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⚠ WARNING

FALLING BLADE HAZARD

- Can cause serious injury or death.
- Keep hands and feet from under raised blade.
- Always put disc in the lowered position and chock gangs to prevent rolling when disconnecting disc gangs for maintenance or repair.

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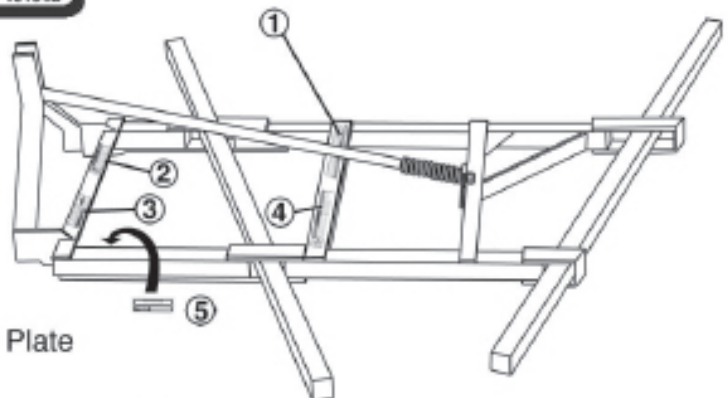
TUFLINE


MODEL # _____

SERIAL # _____

TUFLINE MANUFACTURING COMPANY, INC.
COLUMBUS, MS
662-328-8347

⑤
Serial Number Plate





⚠ WARNING

TO PREVENT SERIOUS INJURY OR DEATH:

- Avoid unsafe operation and maintenance. Do not operate or work on this machine without reading and understanding the operator's manual.
- If manual is lost, contact your dealer.

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15194D

④




⚠ WARNING

- DO NOT allow others to ride on the machine or tractor.
- Park or block disc so it will not roll when disconnecting from tractor drawbar.
- Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured.
- Never place any part of the body underneath equipment or between movable parts even when the engine has been turned off.
- Be sure that everyone is standing clear before operating the machine.
- DO NOT operate or transport at high speeds.
- DO NOT operate or transport on steep slopes.

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SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by an operator's single careless act.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, judgement, and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

It has been said "The best safety device is an informed, careful operator." We ask you to be that kind of operator.

TRAINING

- Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals are available from selling dealer.) Failure to follow instructions or safety rules can result in serious injury or death.
- If you do not understand any part of this manual and need assistance, see your dealer.
- Operators must be instructed in and be capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions.
- Never allow children or untrained persons to operate equipment.
- Train all new personnel and review instruction's frequently with existing workers. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.

PREPARATION

- Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy,

rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.

- Make sure attachment is properly secured, adjusted, and in good operating condition.
- Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.
- A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.

TRANSPORTATION

- Always comply with all state and local laws governing highway safety and lighting and marking requirements.
- Never allow riders on power unit or attachment.
- Do not operate or transport on steep slopes.
- Use extreme care and reduce ground speed on slopes and rough terrain.
- Do not operate or transport equipment while under the influence of alcohol or drugs. Consult your doctor about operating this machine while taking prescription medications.

OPERATION

- Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. Never place any part of the body underneath equipment or between

5 Safety Rules



SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

OPERATION (cont'd)

moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.

- Always comply with all state and local laws governing highway safety and lighting and marking requirements.
- Operate only in daylight or good artificial light.
- Keep bystanders away from equipment.
- Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.
- Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in “locked up” position at all times.
- Never allow riders on power unit or attachment.
- Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.
- Look down and to the rear and make sure area is clear before operating in reverse.
- Use extreme care when working close to fences, ditches, other obstructions, or on hillsides.
- Do not operate or transport on steep slopes.
- Do not stop, start, or change directions suddenly on slopes. Always operate down slopes; never across the face.

- Use extreme care and reduce ground speed on slopes and rough terrain.
- Keep alert and watch the front as well as the rear when operating.
- When making gang adjustments, be careful to keep hands and feet clear of sliding parts and possible pinch points.
- Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.
- Before leaving operator's seat, lower lift arms and put attachment on the ground. Engage brake, stop engine, remove key, and remove seat belt.

MAINTENANCE

- Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.
- Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.
- When performing maintenance or repairs make sure the equipment is in the lowered position and both the mainframe and gangs are properly blocked and secured to prevent rolling. Failure to do so can cause serious injury or death.



SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

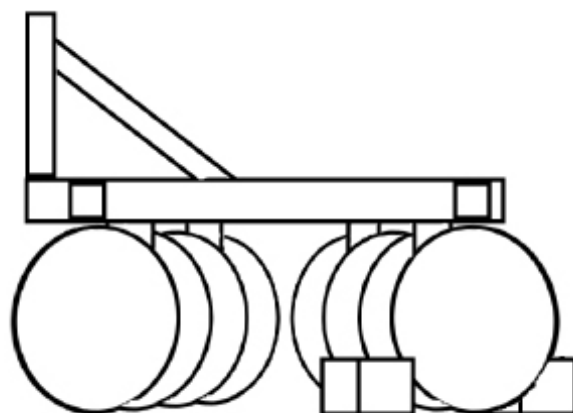
MAINTENANCE(cont'd)

- Make sure attachment is properly secured, adjusted, and in good operating condition.
- Before leaving operator's seat, lower lift arms and put attachment on the ground. Engage brake, stop engine, remove key, and remove seat belt.
- Never perform service or maintenance with engine running.
- Keep all persons away from operator control area while performing adjustments, service, or maintenance.

- Tighten all bolts, nuts, and screws to torque chart specifications on page 19. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before putting unit into service.

STORAGE

- Block equipment securely for storage.
- Keep children and bystanders away from storage area.



Dealer Instructions

Dealer Checklist (Dealer's Responsibility)

It is the dealer's responsibility to complete all pre-assembly of the LO40 before delivery to the customer. Pre-assembly instructions follow on page 9, 10.

Inspect the equipment thoroughly after pre-assembly to be certain it is set up properly before delivering it to the customer. The following check list is a reminder of points to inspect.

Check off each item if it is found satisfactory or after proper adjustment is made.

_____ Check that all safety decals are installed and in good condition. Replace if damaged.

_____ Check all bolts to be sure they are tight.

_____ Check that all cotter pins and safety pins are properly installed.

_____ The disc gangs have been pre assembled at the factory. **It is important for the dealer to visually check and make sure all parts are in tact prior to delivery to customer.**

_____ Show customer the safe, proper procedures to be used when mounting, dismounting, and storing equipment.

_____ For mounted units, add wheel weights, ballast in front tires, and/or front tractor weight to enhance front end stability. A minimum 20% of tractor and equipment gross weight must be on front tractor wheels. When adding weight to attain 20% of tractor and equipment weight on front tractor wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. Do not estimate!

_____ Show customer how to make adjustments.

_____ Present Owner's/Operator's Manual and request that customer and all operators read it before operating equipment. Point out the manual safety rules, explain their meanings and emphasize the increased safety hazards that exist when safety rules are not followed.

_____ Point out the safety decals. Explain their meaning and the need to keep them in place and in good condition. Emphasize the increased safety hazards when instructions are not followed.

_____ Explain to customer the potential crushing hazards of going underneath raised equipment. Instruct customer that service work does not require going underneath unit and never to do so.

_____ Complete the Warranty Registration located on the Frontier website.

Pre-Assembly

The LO40 is shipped from the factory unassembled. The numbers referenced below are from the LO40 parts catalog, Figure 3 on page 14. When assembly is complete tighten all bolts according to the torque and bolt chart on page 19.

Remove the bag from the pallet which contains the u-bolts and hardware. Cut the bands(Photo 1) from the pressure control assembly (ref. #16,17,18,19)

Photo 1



and the mast and pivot weldment (ref. #6). Attach (Photo 2) the spring end of the pressure control assembly (ref. # 16,17,18,19) to the main frame using the rear pivot pin (ref. #43) which is already in main frame. Once this is attached, rotate the mast and pivot weldment (ref. #6) upwards. Using the front pivot pin (ref. #41), which is already in the mast and pivot weldment (ref. #6), connect the two. When finished, cut all bands from the pallet and remove all remaining components.

Photo 2



Photo 3



Using a hoist(Photo 3), raise frame approximately 28" off the ground. Loosen the gang beam clamps (ref. #11 & #12) and the gang beam pivot clamps (ref. #9) on front and rear of unit. *DO NOT REMOVE* these were pre-assembled on the unit at the factory. Slide gang beam (ref. #8) through gang beam clamp (ref. #11 & #12) and gang beam pivot clamp on front of unit. Repeat the same process on the rear gang beam (ref. #8).

To attach gangs, reference the gang assembly chart on page 10. Find the model purchased and attach the gangs to the main frame using the u-bolts (ref. #20) and hardware (ref. #22 & 23) from the bag removed earlier. Position the gangs under the frame using the diagram and measurements given on page 9. Each model has one gang with an outrigger washer attached (ref. # 37). This gang is to be placed on the right rear of the unit with the washer facing out. Once gangs have been positioned and attached to gang beam (ref. # 8), the gang beam will then need to be laterally positioned on the frame. See measurements on page 10. When this is finished, tighten the gang beam clamps (ref. #11 & #12) and the gang beam pivot clamps (ref. #9).

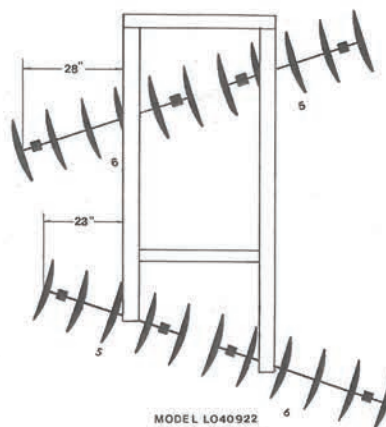
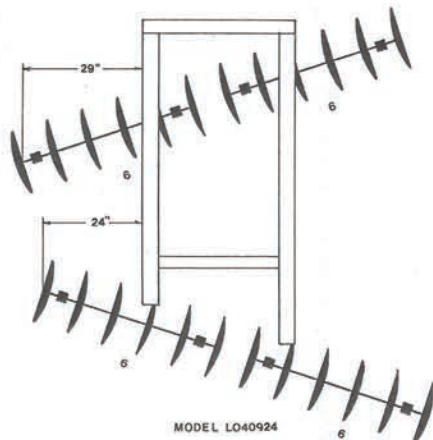
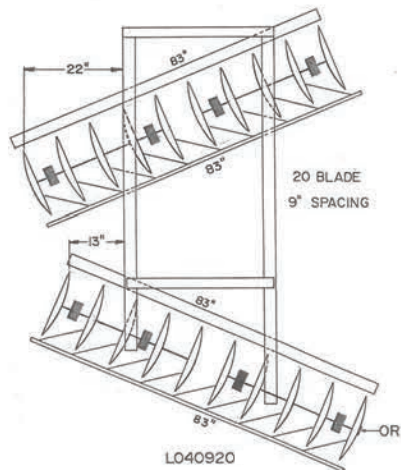
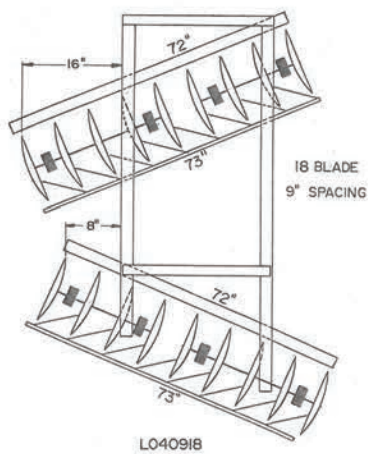
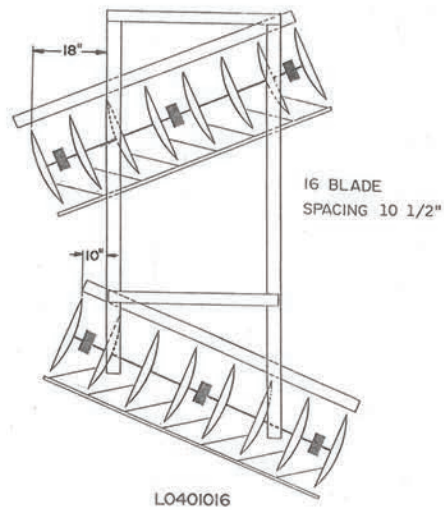
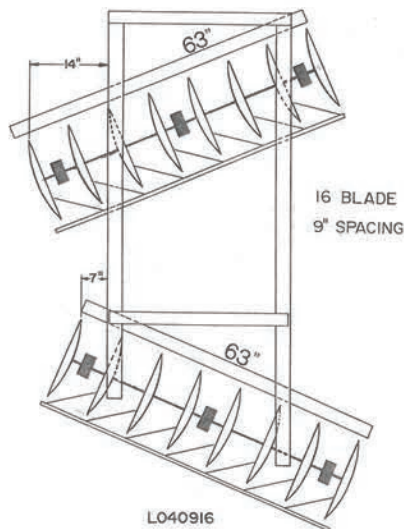
The SMV sign (ref. #10) should be bolted on with the hardware provided on the back side of the frame (see Figure 3, page 14)

9 Dealer Instructions

DH32 Gang Assembly Figure 1

A - Measurement from the side of the frame to the edge of disc blade.

B - Measurement from end of gang beam to center of u-bolt in hanger.



Operation

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by an operator's single careless act.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, judgement, and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

It has been said "The best safety device is an informed, careful operator." We ask you to be that kind of operator.

The operator is responsible for the safe operation of this equipment. The operator must be properly trained. Operators should be familiar with the equipment, the tractor, and all safety practices before starting operation. Read the safety rules and safety decals on pages 3-7.

Owner should check and tighten all hardware after the first hour of operation. The break in stage of your new disc harrow can cause minimal loosening of disc gangs and other hardware as the new paint wears. Please see Bolt Torque Chart (page 19) for proper torque information.

WARNING

- Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.
- Never allow children or untrained persons to operate equipment.
- Keep bystanders away from equipment.
- NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic

system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.

- Service work does not require going underneath.
- Read Manual for service instructions or have service performed by a qualified dealer.
- Stop tractor and implement immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.
- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.

Owner/Operator Pre-Operation Checklist (Owner's/Operator's Responsibility)

____ Review and follow all safety rules and safety decal instructions on page 3 through page 7.

____ Check that equipment is properly and securely attached to tractor.

____ Check that all safety decals are installed and in good condition. Replace if damaged.

____ Check that all hardware is properly installed and secured.

____ Do not allow riders.

____ Make sure tractor ROPS or ROPS CAB and seat belt are in good condition. Keep seat belt securely fastened during operation.

Depth Control

The LO40 leveling system controls the harrow from full depth penetration all the way up to transport height. Once it is set for a particular tractor, only minor adjustments will ever be required. The springs also allow pressure controlled flexibility when obstructions and/or uneven terrain are encountered.

Most operating problems are caused by unequal pressure and penetration of the front and rear gangs. Adjust the leveling system to obtain equal penetration by the front and rear gangs and stabilize the direction and side shift of the disk.

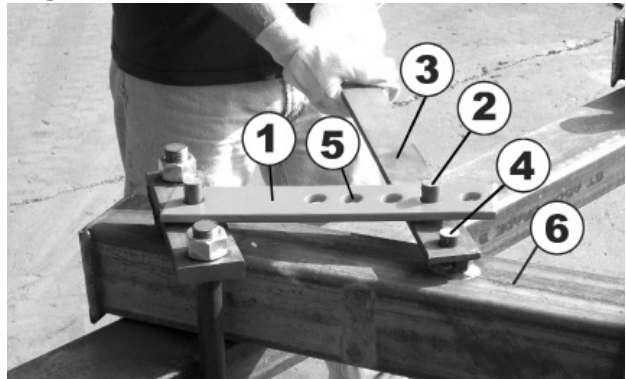
CAUTION

When making depth adjustments, be careful to keep hands and feet clear of sliding parts and possible pinch points.

Adjusting Gang Angles

The gang angles on the LO40 series disk are adjustable. The unit should be lifted two to three inches off the ground with the tractor hydraulic system for an easier adjustment. Each trial run should be made with the tractor in the same gear and approximately the same RPM. Keep in mind that many variables affect the operation of your disk. These include, but are not limited to penetration, speed, soil conditions, etc.

To adjust the front and rear gang angles, remove the gang angle adjusting bar (ref. #1, figure 2) from the Figure 2



stud (ref. #4, figure 2) on main frame (ref. #6, figure 2). Insert stud (ref. #2, figure 2) on angle adjusting lever (ref. #3, figure 2) into hole (ref. #5, figure 2) on gang angle adjusting bar (ref. #1, figure 2). This will allow you to use leverage to increase or decrease gang angle. Once desired angle is set, apply gang angle adjusting bar (ref. #1, figure 2) back on main frame stud (ref. #4, figure 2) and pin off to secure. Angle adjusting lever (ref. #3, figure 2) should be positioned to rest on top of frame.

CAUTION

When making gang adjustments, be careful to keep hands and feet clear of sliding parts and possible pinch points.

Gang Adjustment Trouble Shooting

1. Unit not tracking or is fishtailing

2. Unit not tracking: skipping, jumping, and fishtailing (in untilled, hard soil)

3. Blades plugging with soil or trash.

A. Adjust top link to increase weight on the rear of the disc

B. Disc assembled incorrectly. Refer to assembly instructions.

A. Insure equal cut or depth on front and rear.

B. Reduce speed.

C. Reduce gang angle.

D. Reduce depth of cut by carrying on 3 point lift discing shallow the first time over. NOTE: Some experimentation may be required by trial and error to arrive at proper solution.

A. Add optional heavy scraper kit (Page 17). If already equipped, re-adjust them.

B. Soil conditions not suitable for discing due to excessive moisture.

Trouble Shooting 12

Owner Service

WARNING

- NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.
- Service work does not require going underneath.

WARNING

- Read Manual for service instructions or have service performed by a qualified dealer.

The information in this section is written for operators who possess basic mechanical skills. If you need help, your dealer has trained service technicians available. For your protection, read and follow the safety information in this manual.

- Keep all persons away from operator control area while performing adjustments, service, or maintenance.
- Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3 point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.

CAUTION

- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.

Gang Assembly for Maintenance

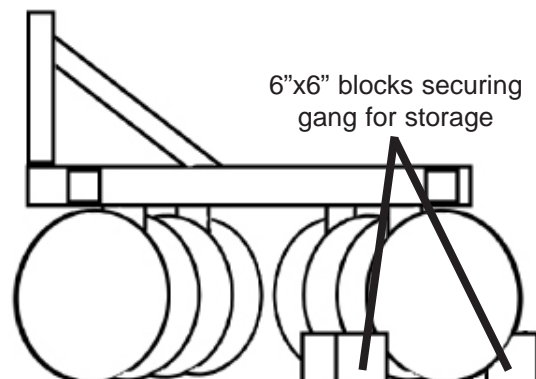
WARNING

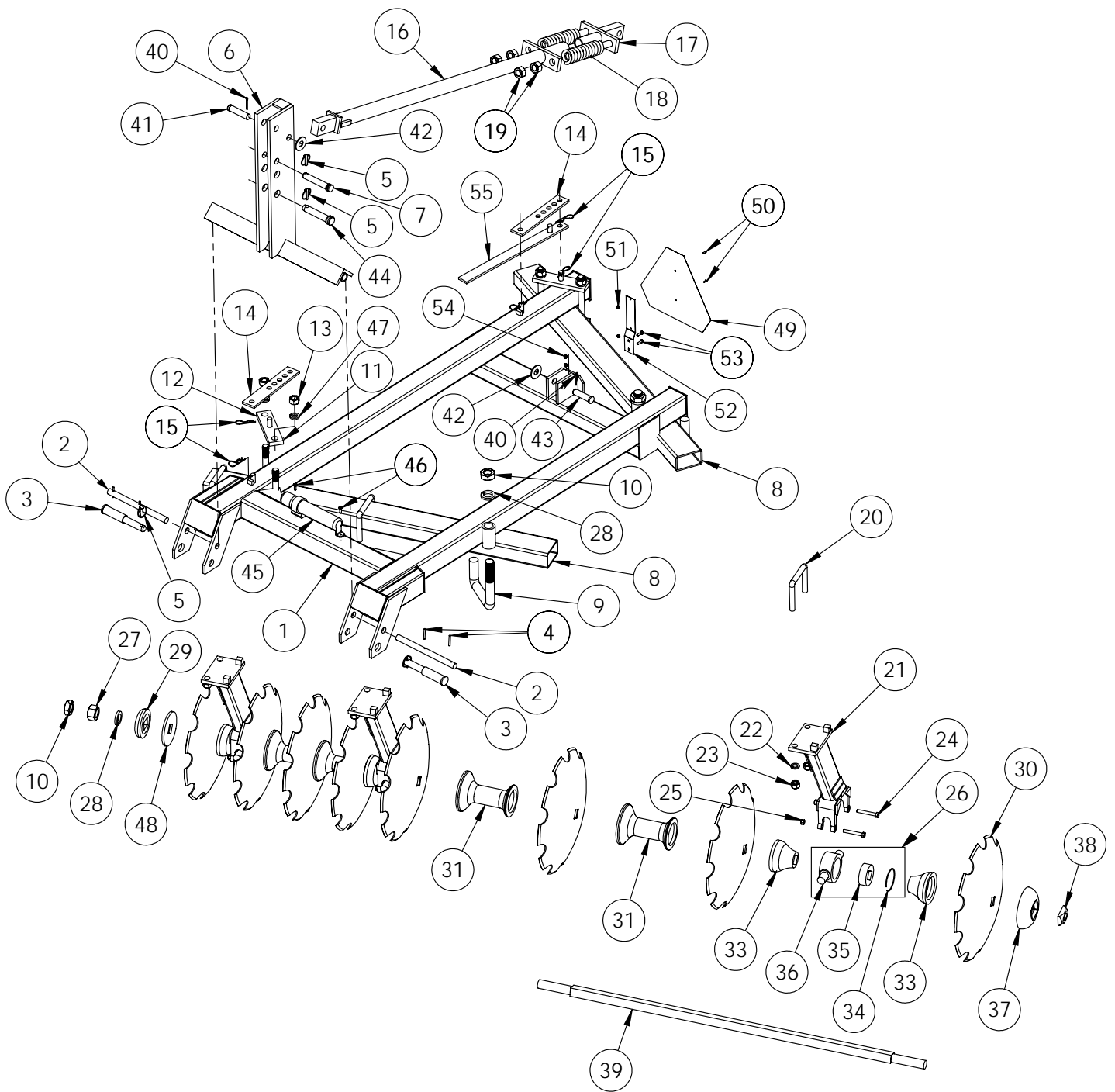
- When performing maintenance or repairs make sure the equipment is in the lowered position and both the mainframe and gangs are properly blocked and secured to prevent rolling. Failure to do so can cause serious injury or death.

When gang component replacement is required, carefully observe all safety issues. Place unit on level ground prior to gang drop. Also make sure that gangs are blocked to keep them from rolling in either direction. After unit is lowered to ground and gangs are secure, loosen nuts on all hex bolts holding hangers to main frame. Observe the sequence and location of each gang component and refer to the gang diagram on Figure 3 for removal and replacement of the desired component. After replacement is completed reinstall gang parts in proper order as shown on gang diagram on Figure 3. Make sure that the gang nut on the gang axle is properly tightened after replacements are made. Refer to "Bolt Tightening Torque Chart" on page 19 for proper torque.

Storage

When storing your disc harrow make sure the unit is placed on level ground and that the gangs are properly chocked by bracing with 6"x6" blocks on the front and rear side of one complete gang assembly. See the diagram below.





Ref.#	Part #	Description	Qty.
1	12733	MAIN FRAME	1
	13244	MAIN FRAME	1
2	12250	PIVOT SHAFT	2
3	15650	HITCH PIN, CAT. 2 & 3	2
4	10333	ROLL PIN	4
5	VP252	LYNCH PIN	4
6	14277	MAST & PIVOT WELDMENT	1
7	15208	CAT. 2 TOP LINK PIN	1
8	T1001	GANG BEAM, 5"X3"X 63"	2
	11686	GANG BEAM, 5"X3"X 72"	2
	11603	GANG BEAM, 5"X3"X74"	2
	T1003	GANG BEAM, 5"X3"X 81"	2
	T1005	GANG BEAM, 5"X3"X 90"	2
	T1007	GANG BEAM, 5"X3"X 99"	2
9	12271	GANG BEAM PIVOT CLAMP	2
10	9472	JAM NUT, 1 1/2"	*MS
11	10727	GANG BEAM BOTTOM CLAMP	2
12	12288	GANG BEAM TOP CLAMP PLATE	2
13	T28	HEX NUT, 1"	4
14	12041	GANG ANGLE ADJUSTING BAR	1
15	9979	HAIR PIN CLIP	5
16	12728	PRESSURE CONTROL ROD,	1
	13247	PRESSURE CONTROL ROD,	1
17	12256	PRESSURE CONTROL SCREW	1
18	T509	SPRING, 8 1/2"	2
19	T18	HEX NUT, 1 1/8"	4
20	11975	U-BOLT, 7/8" FOR 5"X3" BEAM	*MS
21	12166	TUBULAR GANG HANGER FOR 5"X3" BEAM	*MS
22	T21	LOCKWASHER, 7/8"	*MS
23	T19	HEX NUT, 7/8"	*MS
24	12163	HEX BOLT, 1/2" X 3 1/2" GR. 5	*MS
25	9226	FLANGE LOCK NUT, 1/2"	*MS
26	TMDT604IP	TRUNNION HOUSING, BEARING, & SNAP RING ASSY.	*MS
27	T727	HEX NUT, 1 1/2"	*MS
28	T728	LOCKWASHER, 1 1/2"	*MS
29	T492	END WASHER, 1 1/2"	*MS
30	3-22177-1	DISC BLADE, 22" X 1 1/2" SQ. SMOOTH	*MS
	3-22177-2	DISC BLADE, 22" X 1 1/2" SQ. NOTCHED	*MS
	3-24256-1	DISC BLADE, 24" X 1 1/2" SQ. SMOOTH	*MS
	3-24256-2	DISC BLADE, 24" X 1 1/2"SQ. NOTCHED	*MS
31	T103	SPACER SPOOL, 1 1/2" X 9"	*MS

15 Parts Catalog

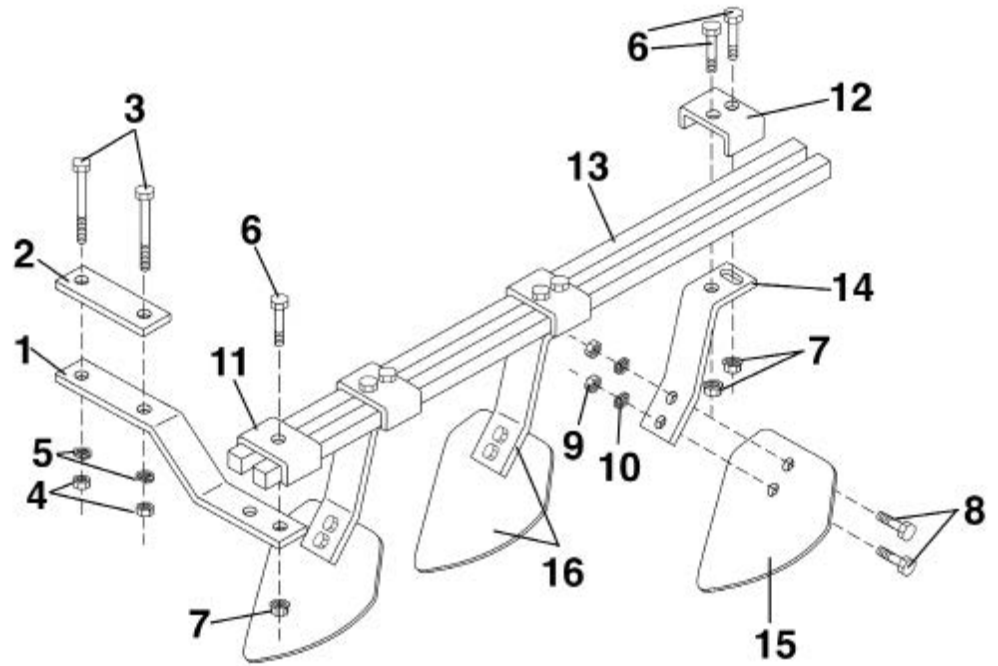
* M/S - Model Specific

Parts List (cont'd)

33	T495	END SPACER	*MS
34	T729	SNAP RING, 4"	*MS
35	T604IP	BEARING, 1 1/2" SQ. (W211PP3)	*MS
36	TMD	TRUNNION BEARING HOUSING	*MS
37	T491	BUMPER WASHER, 1 1/2"	*MS
	TOR15	OUTRIGGER WASHER, 1 1/2" (REAR GANG ONLY)	1
38	11397	SQUARE AXLE NUT, 1 1/2"	*MS
39	9879	AXLE, 1 1/2" X 34 1/8"	*MS
	9880	AXLE, 1 1/2" X 42 3/4"	*MS
	9881	AXLE, 1 1/2" X 51 3/4"	*MS
	9883	AXLE, 1 1/2" X 70 1/2"	*MS
	9873	AXLE, 1 1/2" X 79 5/8"	*MS
40	15530	COTTER PIN, 3/16" X 2"	2
41	15652	FRONT PIVOT PIN	1
42	T606	FLATWASHER, 1"	2
43	13311	REAR PIVOT PIN	1
44	15651	CAT. 3 TOP LINK PIN	1
45	15189	ASSEMBLY MANUAL TUBE AND CAP	1
46	15348	SELF TAPPING SCREW, 5/16" X 1"	2
47	T34	LOCKWASHER, 1"	4
48	15376	SPACER WASHER, 1 1/2" SQ. (IF NEEDED)	*MS
49	14996	SMV SIGN	1
50	15212	ROUND HEAD MACHINE SCREW, 1/8" X 1/2" GR. 2	2
51	15213	HEX NUT, 1/8"	2
52	14997	SMV MOUNTING BRACKET	1
53	14998	CARRIAGE BOLT, 5/16" X 1" GR. 2	2
54	15198	LOCK NUT, 5/16"	2
55	12034	ANGLE ADJUSTING LEVER	1
56	15194	SAFETY DECAL SHEET	1

Optional Equipment

Heavy Scraper Kit
Figure 4



Ref.#	Part #	Description	Qty.
1	10266	SCRAPER MOUNT BRACKET (5X3)	*MS
2	10265	SCRAPER BAR TOP PLATE (5X3)	*MS
3	T745	HEX BOLT, 5/8" X 5" GR. 2	*MS
4	T22	HEX NUT, 5/8"	*MS
5	T24	LOCKWASHER, 5/8"	*MS
6	11082	HEX BOLT, 1/2" X 2 1/2" GR. 2	*MS
7	9226	FLANGE LOCK NUT, 1/2"	*MS
8	T733	HEX BOLT, 1/2" X 1 1/2" GR. 2	*MS
9	T26	HEX NUT, 1/2"	*MS
10	T25	LOCKWASHER, 1/2"	*MS
11	T803	SCRAPER BAR CLAMP, "U" CLAMP- 1 HOLE	*MS
12	9356	2- HOLE CLAMP	*MS
13	T2644	HEAVY SCRAPER BAR, 63"	2
	11712	HEAVY SCRAPER BAR, 72"	2
	T2645	HEAVY SCRAPER BAR, 81"	2
	T2647	HEAVY SCRAPER BAR, 90"	2
	T2649	HEAVY SCRAPER BAR, 99"	2
14	10151	SCRAPER ARM	*MS
15	11081	UNIVERSAL SCRAPER BLADE	*MS
16	11027 or	ARM & BLADE ASSEMBLY (FRONT)	*MS
	11028	ARM & BLADE ASSEMBLY (REAR)	*MS

Heavy Scraper Kit Mounting Instructions

*NOTE- When attaching heavy scraper kit, do NOT tighten any hardware until stated in directions. Adjustments may need to be made.

Reference Figure 4

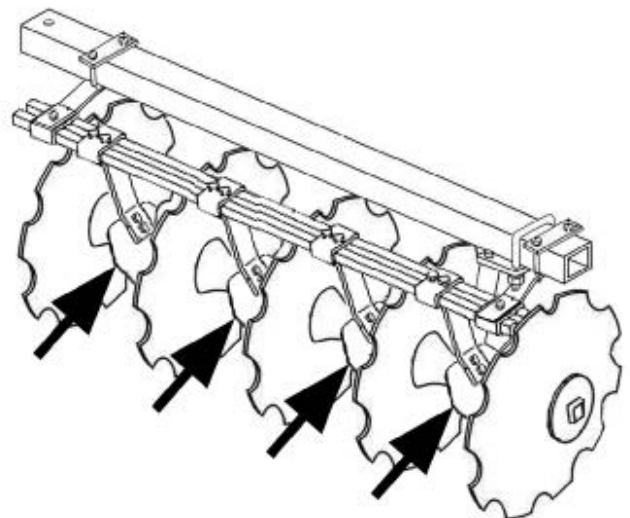
To attach heavy scraper kit to disc, place scraper bar top plate (Figure 4, ref. #2) on top of gang beam and scraper mount bracket (ref. #1) on bottom of gang beam. Using 5/8" x 5" Gr. 2 bolts (ref. #3), fasten both pieces together around gang beam with 5/8" lock washer and hex nut (ref. #4 & #5). There should be two scraper mount bracket assemblies for each gang beam with the placement being close to each gang hanger. Some adjustment may need to be made when mounting scraper arm & blade assemblies (ref. #16). Take heavy scraper bar (ref. #13) and mount on top of scraper mount bracket assembly with 1-hole scraper bar clamp (ref. #11). Use a 1/2" x 2 1/2" Gr. 2 bolt (ref. #6) and a 1/2" flange locknut (ref. #7) to fasten. Scraper arm & blade assemblies (ref. #16) are now mounted on bottom of scraper bar (ref. #13). There are two different sides of scraper arm & blade assemblies (ref. #16). One side fits the right front and left rear, the other side fits the left front and right rear. When mounting scraper arm & blade assemblies (ref. #16) to bottom of scraper bar (ref. #13), use 2-hole clamp (ref. #12) on top of scraper bar (ref.

#13) and fasten together with 1/2" x 2 1/2" GR 2 bolt(ref. 6) and 1/2" flange locknut (ref. #7). Scraper arm & blade assemblies are not provided for outside front and inside rear blades! Once all scraper arm & blade assemblies (ref. #16) have been mounted, now is the time to make adjustments to scraper mount bracket assemblies, if needed. When adjustments are made, tighten scraper mount bracket assemblies to gang beam and tighten scraper bar (ref. #13) to scraper mount bracket assembly using 1-hole scraper bar clamp (ref. #11) and hardware (ref. #6 & #7). Scraper arm & blade assemblies (ref. #16) should then be positioned as close to the disc blade as possible without touching it. Turning the gang after mounting each scraper arm & blade assembly (ref. #16) will help determine the correct mounting position of each one. This is recommended to prevent dragging or binding of the gang.

*NOTE- Tighten all fasteners after setting and adjustments are made. Please see Bolt and torque Chart on page 19.

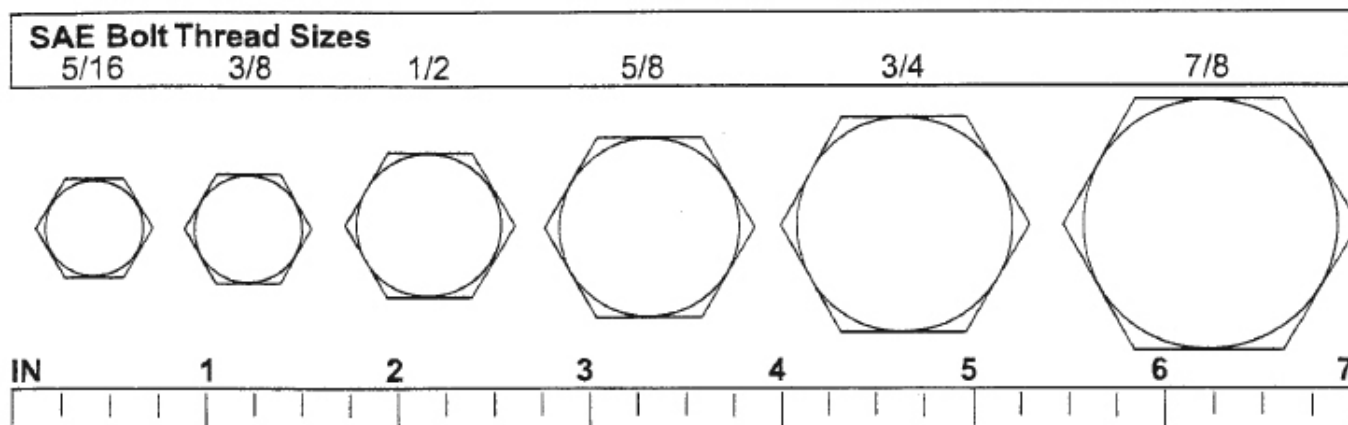
*NOTE- Re-tighten all fasteners after first operational use. Please see Bolt and Torque Chart on page 19.

Regardless of model or configuration, scrapers are only located between two disk blades(Refer to the diagram to the right). There is no need for a scraper on the far right blade on the front gangs or the far left blade on the rear gangs.

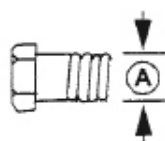


Bolt Size Chart

NOTE: Chart shows bolt thread sizes and corresponding head (wrench) sizes for standard SAE and metric bolts.



SAE Torque Chart



SAE SERIES TORQUE CHART



SAE Bolt Head
Identification



A Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m
1/4"	7/16"	6	8	10	13	14	18
5/16"	1/2"	12	17	19	26	27	37
3/8"	9/16"	23	31	35	47	49	67
7/16"	5/8"	36	48	55	75	78	106
1/2"	3/4"	55	75	85	115	120	163
9/16"	13/16"	78	106	121	164	171	232
5/8"	15/16"	110	149	170	230	240	325
3/4"	1-1/8"	192	261	297	403	420	569
7/8"	1-5/16"	306	416	474	642	669	907
1"	1-1/2"	467	634	722	979	1020	1383

DH34 Series gang bolt torque 795 lbs-ft 1080 N-m

17 Bolt Size and Bolt Torque Chart

NOTES

PART NO.
14336

Tuttime®