

O P E R A T O R ' S M A N U A L

LAND PLANES

| LP1-60

| LP1-72

| LP1-84

| LP1-96



Tuffline
Well Built, Performance Driven Implements

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 located on the Frontier website.

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 Frontier 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 Frontier 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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SPECIFICATIONS

| | LP1-60 | LP1-72 | LP1-84 | LP1-96 |
|------------------------------|-----------------------------------|-----------------------------------|--|--|
| 3-Point Hitch | Category I (iMatch Compatible) | Category I (iMatch Compatible) | Category I and II Quick Hitch (iMatch Compatible) | Category I and II Quick Hitch (iMatch Compatible) |
| Working Width | 60" | 72" | 84" | 96" |
| Working Depth | 48" | 48" | 48" | 48" |
| Tractor HP | 18-50 HP | 18-50 HP | 22-75 HP | 22-75 HP |
| Shipping Weight | 573 lbs | 628 lbs | 684 lbs | 732 lbs |
| Approximate Operating Weight | 493 lbs | 548 lbs | 604 lbs | 652 lbs |
| Beam Type | Tubular 3" X 3" X 1/4" | Tubular 3" X 3" X 1/4" | Tubular 3" X 3" X 1/4" | Tubular 3" X 3" X 1/4" |
| Cutting Edges | (2) 1/2" x 6' Reversible | (2) 1/2" x 6' Reversible | (2) 1/2" x 6' Reversible | (2) 1/2" x 6' Reversible |
| Skid Plate Thickness | 3/8" | 3/8" | 3/8" | 3/8" |
| End Plate Thickness | 3/16" | 3/16" | 3/16" | 3/16" |
| End Plate Height | 12" | 12" | 12" | 12" |

GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your Land Plane. 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.

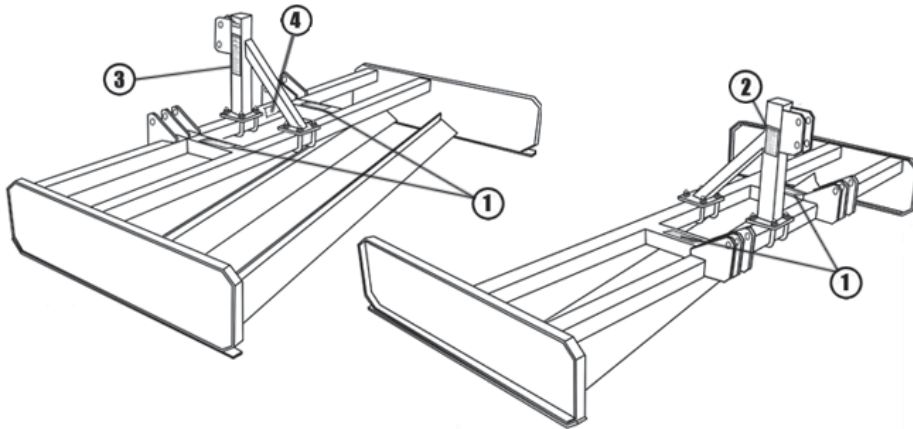
SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

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

Replace Decals Immediately If Damaged!

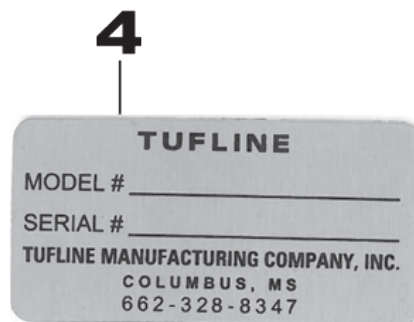
Check that all safety decals are installed and in good condition. Replace if decals are worn or damaged. Replacement Part numbers are listed here.



1



2



4

Serial Number Plate



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, judgment, 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



SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

OPERATION (cont'd)

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.

- 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 properly blocked and secured to prevent rolling.



SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



MAINTENANCE(cont'd)

Failure to do so can cause serious injury or death.

- 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. Check that the box blade is properly attached to the power source and that the 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

Pre-Assembly

Top Link Mast Assembly

Reference Figure 1(Pg. 10).

The Top link mast should be centered evenly between the two inside hitch ears. Once centered, insert the four 11139 u-bolts and fasten with the eight T-24 lock washers and 15132 lock nuts.

Dealer Checklist

(Dealer's Responsibility)

Inspect the equipment thoroughly after 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.

_____ 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.

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 2-6.

Owner should check and tighten all hardware after the first hour of operation. The break in stage of your new land plane can cause minimal loosening of hardware. Please see Bolt Torque Chart (page 13) 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)

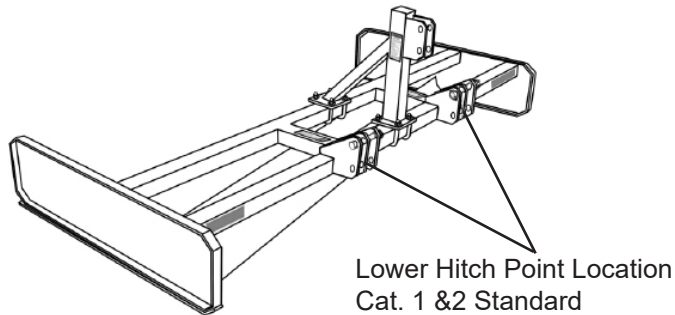
- ____ Review and follow all safety rules and safety decal instructions on page 2 through page 6.
- ____ Check that equipment is properly and securely attached to tractor.
- ____ Check that all safety decals are installed and in good condition. Replace if damaged.
- ____ Check that all hardware is properly 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.

Connecting Land Plane to Tractor

The land plane is compatible with tractors equipped with Category 1 or Category 2, 3-point hitch systems that use side-swing type lower lift arms. The land planes will also fit tractors equipped with a Category 1 and 2 Quick Hitch system.

NOTE: When attaching land plane to any hitch other than a standard Category 1 hitch, bushings must be purchased separately.

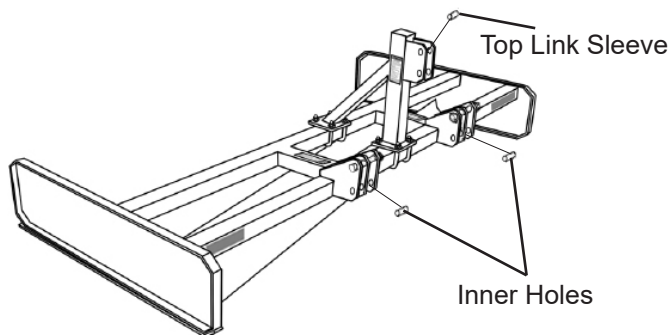
Figure 1. Category 1 and 2 Hitch Set-up



Category 1 Standard (Figure 1)

1. Attach the tractor's lower lift arms to the land plane through the lower, inner set of holes.
2. Use the hitch pin supplied with your land plane and re-install the lynch pins.
3. Attach the tractor's top link to the land plane's mast using the heavy-duty top link pin and lynch pin supplied with the top link.

Figure 2. Category 1 Quick Hitch Set-up



Category 2 Standard (Figure 1)

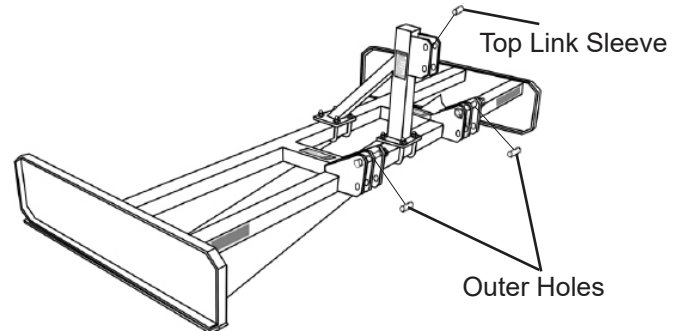
1. Use Category 1 Standard instructions except use lower, outer set of holes.

Category 1 Quick Hitch (Figure 2)

1. Connect the tractor's Quick Hitch to the land plane through the upper, inner set of holes.

2. Slide lower sleeve (sold separately) over the mounting pin supplied with land plane. Re-install lynch pins.
3. Slide upper sleeve over the heavy-duty top link pin supplied with top link. Reinstall retaining pin.

Figure 3. Category 2 Quick Hitch Set-up



Category 2 Quick Hitch (Figure 3)

1. Connect the tractor's Quick Hitch to the land plane through the upper, outer set of holes.
2. Slide upper sleeve over the heavy-duty top link pin supplied with top link. Reinstall retaining pin.

Adjusting Top Link

Adjust the three point top link so that both blades touch the ground at the same time. In most cases this will give the desired results. To adjust the front blade to cut more than the rear, shorten the three point top link. Lengthen the top link to make the rear blade cut more.

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.

CAUTION

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.

WARNING

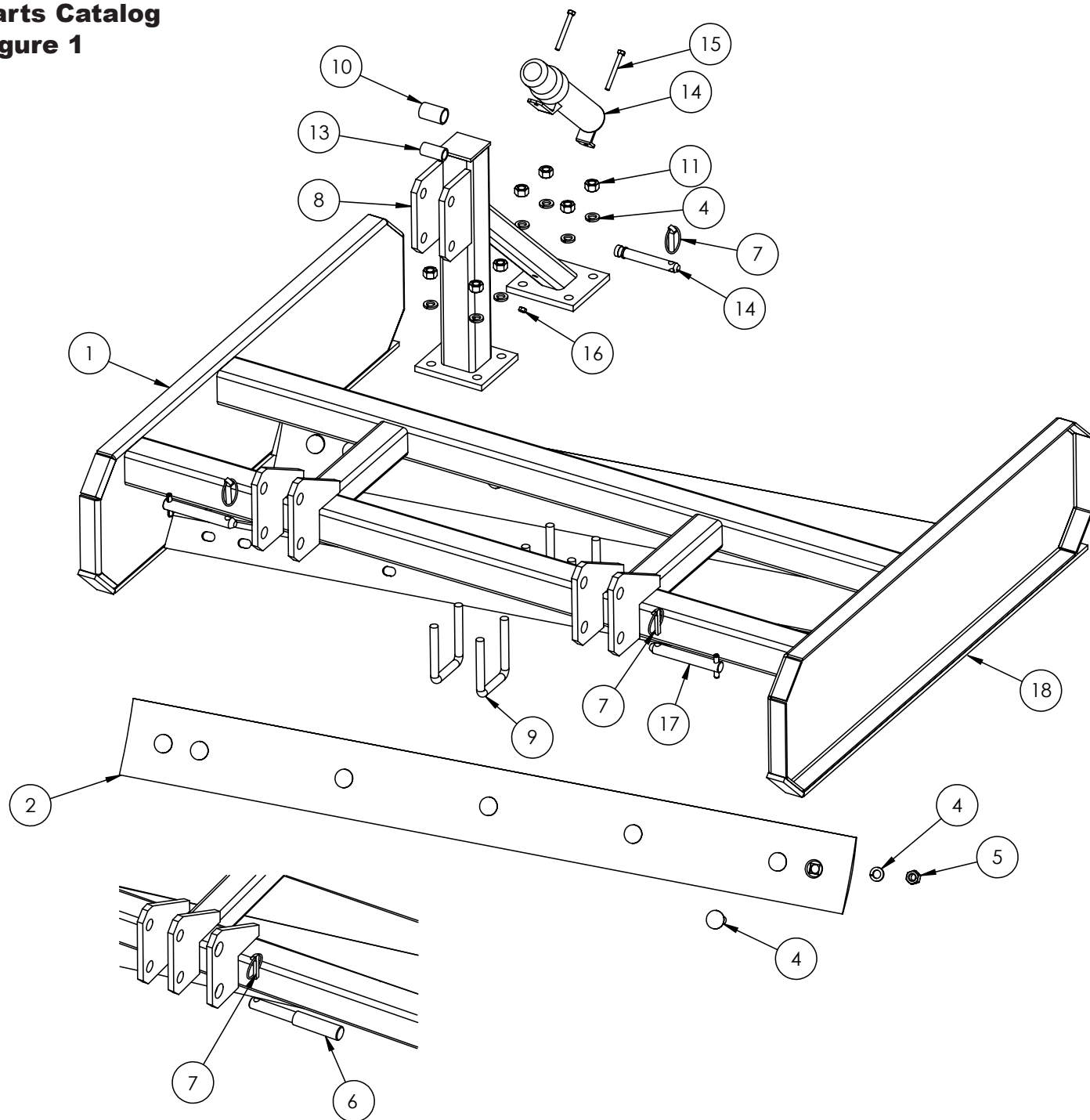
- Keep all persons away from operator control area while performing adjustments, service, or maintenance.
- Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3 point hitch and all raised components to the ground, operate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

CAUTION

Storage

When storing your land plane make sure the unit is placed on level ground and clear of any obstructions. Use caution when disconnecting the land plane from the tractor.

Parts Catalog
Figure 1



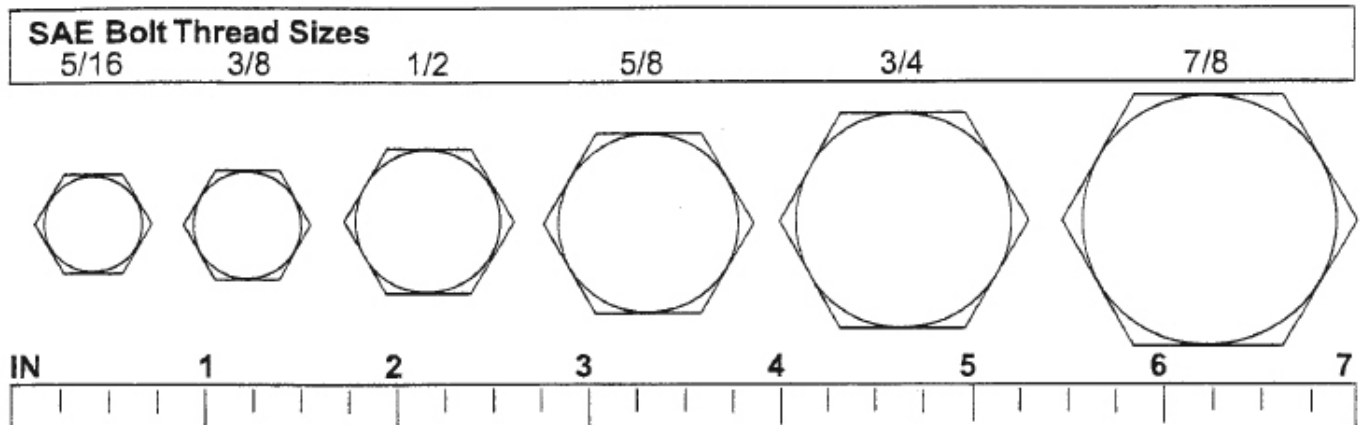
Cat. 1 & 2 Hitch
LP1-84 and LP1-96
Only

Parts Catalog(cont'd.)

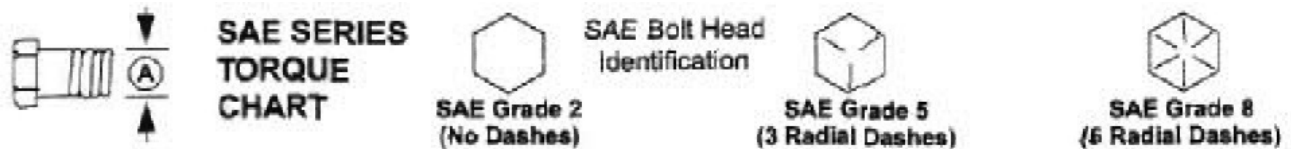
| Ref.# | Part # | Description | Qty. |
|--------------|---------------|--|-------------|
| 1 | 14789 | MAIN FRAME WELDMENT 60" | 1 |
| | 14790 | MAIN FRAME WELDMENT 72" | 1 |
| | 14791 | MAIN FRAME WELDMENT 84" | 1 |
| | 14792 | MAIN FRAME WELDMENT 96" | 1 |
| 2 | 10702 | CUTTING EDGE 60" | 2 |
| | 10704 | CUTTING EDGE 72" | 2 |
| | 10705 | CUTTING EDGE 84" | 2 |
| | 10706 | CUTTING EDGE 96" | 2 |
| 3 | 10699 | PLOW BOLT, 5/8" X 1 3/4" GR5 | *MS |
| 4 | T-24 | LOCK WASHER, 5/8" | *MS |
| 5 | T-22 | HEX NUT, 5/8" | *MS |
| 6 | 13257 | HITCH PIN, CAT 1 AND 2 | 2 |
| 7 | VP-252 | LYNCH PIN | 3 |
| 8 | 15602 | MAST WELDMENT | 1 |
| 9 | 11139 | U-BOLT, 5/8" FOR 3" X 3" TUBE | 4 |
| 10 | 15210 | CAT 2 BUSHING, 1 15/16" | 1 |
| 11 | 15132 | LOCK NUT, 5/8 | 8 |
| 12 | 15206 | CAT 1 TOP LINK PIN, 3 7/8" | 1 |
| 13 | 15209 | CAT 1 BUSHING, 1 15/16" | 1 |
| 14 | 15189 | ASSEMBLY MANUAL TUBE AND CAP | 1 |
| 15 | 15287 | HEX BOLT, 5/16" X 3" GR2 | 2 |
| 16 | 15198 | LOCK NUT, 5/16" | 2 |
| 17 | 10684 | HITCH PIN, CAT 1, LP1-60 AND LP1-72 ONLY | 2 |
| 18 | 14836 | REPLACEABLE SKID SHOES(MUST BE WELDED) | 2 |

Bolt Size Chart

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



SAE Torque Chart



| Ⓐ 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 |

**PART NO.
15614**

