

OPERATOR'S MANUAL

Landscape Rakes

LR1&LR2

LR1-60

LR1-72

LR1-84

LR2-72

LR2-84

LR2-96

LR2-120

The logo for Tuffline, featuring the word "Tuffline" in a stylized, italicized font. The letters are filled with a gradient from red at the top to yellow at the bottom, and are outlined in black with a drop shadow effect.

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Monroe 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 Monroe Tufline website.

TO THE OWNER:

Read this manual before operating your Monroe 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 Monroe Tufline 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 Monroe Tufline dealer has trained mechanics, genuine Monroe Tufline service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine Monroe 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) _____

Dealer Name: _____ Dealer Contact Information: _____

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

Indicates that failure to observe can cause damage to equipment.

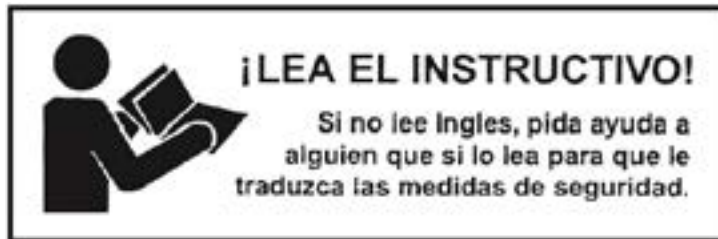
NOTE

Indicates helpful information.

Introduction ii

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SPECIFICATIONS

| Model # | Width | Weight |
|---------|-------|--------|
| LR1-60 | 5' | 348# |
| LR1-72 | 6' | 328# |
| LR1-84 | 7' | 405# |

| Model # | Width | Weight |
|---------|-------|--------|
| LR2-72 | 6' | 475# |
| LR2-84 | 7' | 525# |
| LR2-96 | 8' | 575# |
| LR2-120 | 10 | 650# |

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. Replacement Part numbers are listed below. Use this diagram to affix new safety decals. Decals can be obtained from your local dealer.



ITEM 3



ITEM 1



ITEM 4



ITEM 2



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, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate. Implement Code given in Specifications Section, page #1, is used to determine appropriate ballast. See your tractor operator's manual for required number of weights to use for your specified Implement Code.

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.



SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

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 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 pitch and roll angle 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.



SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

MAINTENANCE(cont'd)

- When performing maintenance or repairs make sure the equipment is in the lowered position and properly blocked and secured to prevent rolling. 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, page 12. Check that the land plane is properly attached to the power unit 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

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 intact prior to delivery to customer.

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

___ For mounted units, add 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 2-5.

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.

____ After day of operation, check all hardware. Retighten if needed. Please see Bolt Torque Chart (page 12) for proper torque information.

Connecting Landscape Rakes

The landscape rakes compatible with tractors equipped with Category 1, 3-point hitch systems that use side-swing type lower lift arms. The land planes will also fit tractors equipped with an Category 1 Quick Hitch system.

Category 1 Standard 3-Point Hook-up

1. Attach the tractor's lower lift arms to the land plane on the lower draft hitch pins. Re-install the lynch pins.
2. Attach the tractor's top link to the land plane's A-Frames, using the heavy-duty top link pin and lynch pin supplied, with the top link to the upper top link pin hole.

Category Quick Hitch (Figure 1)

1. Connect the tractor's Quick Hitch by guiding the top hook through the lower top link pin with bushings.
2. Install bushing set (sold separately), Number BW15056, or equivalent, to lower draft pins. These bushings allow the hooks on the Quick Hitch and the pins on the landscape rake to fit together properly. Slide sleeve shoulder bushings over draft pins. Secure each shoulder bushing with roll pins.
3. Upper bushing should already be installed to the top link.

Adjusting LR1&LR2

ANGLE

To adjust the angle, remove the pivot pin, Ref. 1, Fig.1 , and rotate the raketire until the desired angle is reached. Replace the pivot pin to lock the angle setting.

TILT

There are two tilt to positions of 15" amd 30" to both the left and right. Remove the tilt pin, Ref. 1, FIG. 1A. Pull or push on the edge of the raketire in order to rotate it up, and down. Replace the pin when tilt angle is reached and secure it with the hair pin cotter, Ref. 2.

OFFSET

The LR1&LR2 series landscape rake has 2 manual offset positions on both the left, and right side. Adjust the adjustment ratchet in or out thr desired offset.

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.

Owner should check and tighten all hardware after the first hour of operation. The break in stage of your new grader blade can cause minimal loosening of hardware. Please see Bolt Torque Chart (page 12) for proper torque infor-

WARNING

mation.

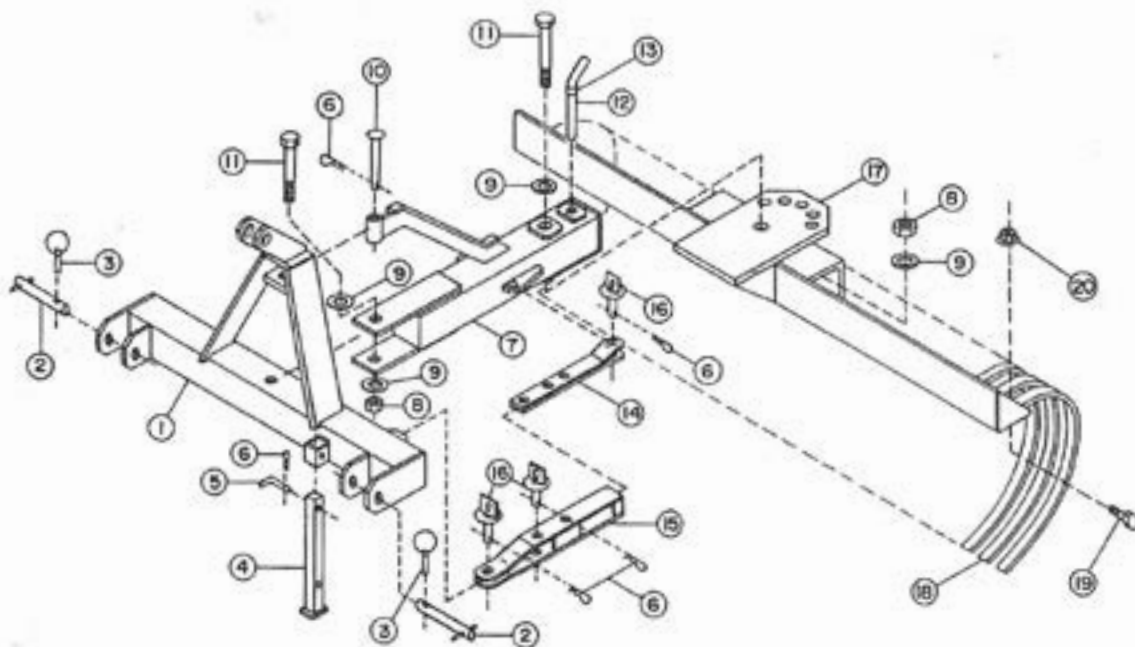
- Keep all persons away from operator control area while performing adjustments, service, or maintenance.
- Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3 point hitch and all raised components to the ground, operate 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

CAUTION

head.

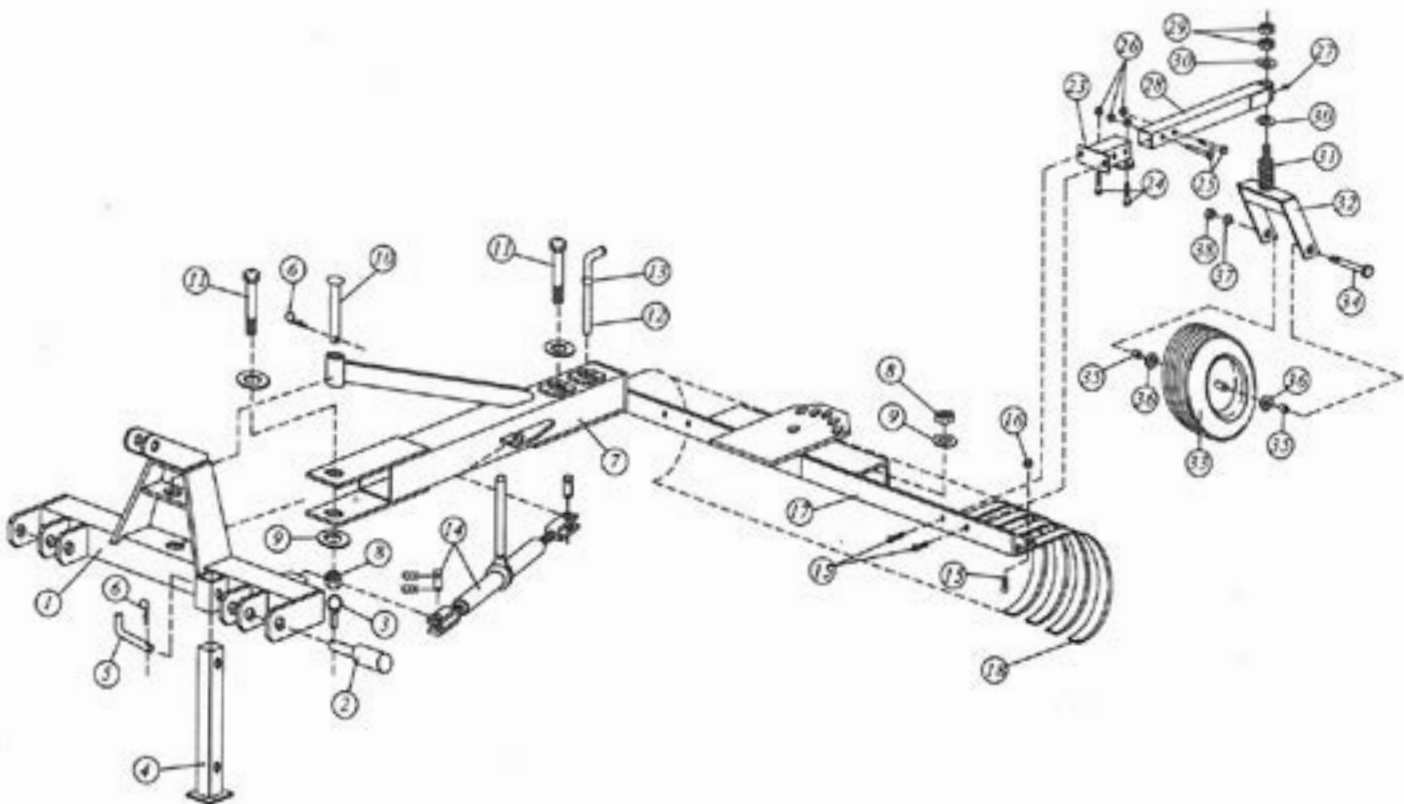
Storage

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.



LR1 - SERIES

| REF. NO. | PART # | DESCRIPTION |
|----------|--------|------------------------------|
| 1 | 13331 | HITCH WELDMENT |
| 2 | 10684 | HITCH PIN, CAT. 1, 7 3/8" |
| 3 | VP252 | LYNCH PIN |
| 4 | 13309 | PARK STAND, 24 1/2" |
| 5 | 9690 | PARK STAND PIN |
| 6 | 9979 | HAIR PIN CLIP |
| 7 | 13335 | MAIN BAR WELDMENT |
| 8 | 10332 | HEX LOCK NUT, 1" |
| 9 | T-606 | FLAT WASHER, 1" |
| 10 | 13310 | STRUT PIN, 1" X 5" |
| 11 | T-2662 | HEX BOLT, 1" X 6 1/2", GR. 5 |
| 12 | 13348 | PIVOT PIN, 3/4" X 10" |
| 13 | 13349 | PIVOT PIN STOP |
| 14 | 13326 | LATERAL ADJUST BAR |
| 15 | 13328 | ADJUST BAR RECEIVER |
| 16 | 13260 | ADJUST BAR PIN, 1" X 3" |
| 17 | 14138 | TOOL BAR WELDMENT, 60" |
| | 14139 | TOOL BAR WELDMENT, 66" |
| | 14140 | TOOL BAR WELDMENT, 72" |
| | 14141 | TOOL BAR WELDMENT, 84" |
| 18 | 14149 | RAKE TOOTH |
| 19 | 14150 | BOLT, 3/8" X 1 1/2" |
| 20 | 12899 | FLANGE NUT, 3/8" |



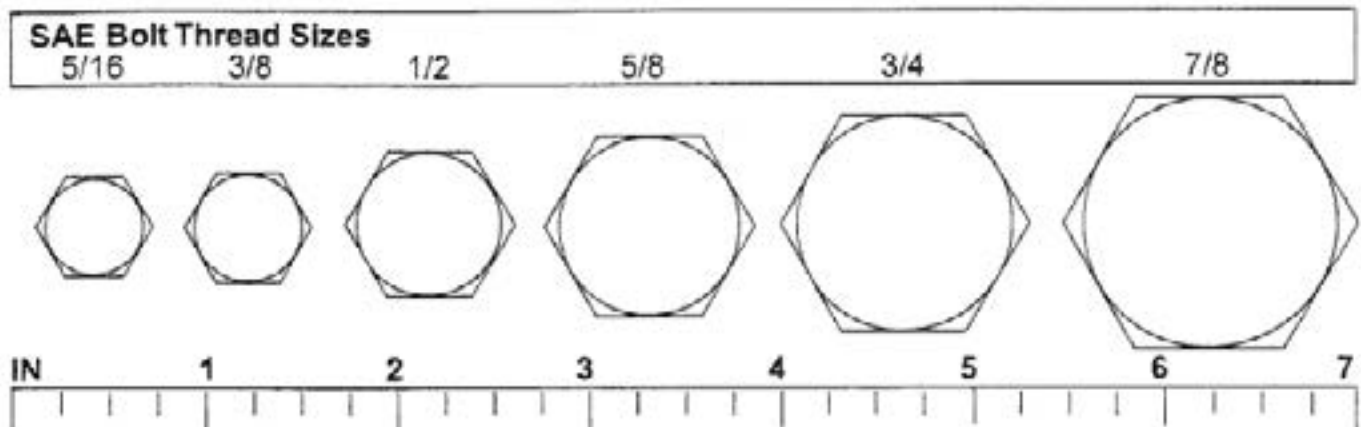
LR2 SERIES

LR-72, LR2-84, LR2-96, LR2-120

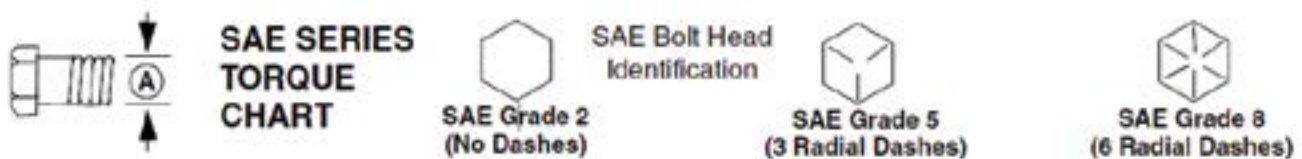
| REF. # | PART # | DESCRIPTION | REF. # | PART # | DESCRIPTION |
|--------|--------|------------------------------|--------|--------|------------------------------|
| 1 | 13264 | HITCH WELDMENT | 23 | 14679 | G/W MOUNTING BRACKET |
| 2 | 13257 | HITCH PIN, CAT I & CAT II | 24 | 14150 | HEX BOLT, 3/8" X 1 1/2" |
| 3 | VP252 | LYNCH PIN | 25 | T-892 | HEX BOLT, 3/8" X 3" GR.2 |
| 4 | 12653 | PARKING STAND (25 1/2") | 26 | 12899 | FLANGE LOCKNUT, 3/8" |
| 5 | 9690 | PARKING STAND PIN | 27 | T-9 | GREASE FITTING |
| 6 | 9979 | HAIR PIN CLIP | 28 | 14683 | GUAGE W/ARM WELD'T |
| 7 | 14874 | MAIN BAR WELDMENT | 29 | T-18 | HEX NUT, 1 1/8" |
| 8 | 10332 | HEX LOCK NUT, 1" | 30 | T-698 | FLAT WASHER, 1 1/8" |
| 9 | T-606 | FLAT WASHER, 1" | 31 | T-511 | ADJUSTING SPRING, 4 1/2" |
| 10 | 13310 | STRUT PIN, 1" X 5" | 32 | 14688 | G/W FORK WELDMENT |
| 11 | 13254 | HEX BOLT, 1" X 7", GR.8 | 33 | 15099 | RIM & TIRE ASS'Y |
| 12 | 13348 | PIVOT BOLT, 3/4" X 10" | 34 | T-746 | HEX BOLT, 5/8" X 5 1/2" GR.2 |
| 13 | 13349 | PIVOT PIN STOP | 35 | 14903 | 3/4" SCH 40 PIPE X 3/4" |
| 14 | 15005 | TURNBUCKLE ASSEMBLY | 36 | 9354 | FLAT WASHER, 5/8" |
| 15 | 14150 | HEX HEAD BOLT, 3/8" X 1 1/2" | 37 | T-24 | LOCKWASHER, 5/8" |
| 16 | 12899 | FLANGE NUT, 3/8" | 38 | T-22 | HEX NUT, 5/8" |
| 17 | 16063 | TOOL BAR WELDMENT, 72" | | | |
| 17 | 16052 | TOOL BAR WELDMENT, 84" | | | |
| | 16050 | TOOL BAR WELDMENT, 96" | | | |
| | 16051 | TOOL BAR WELDMENT, 120" | | | |
| 18 | 16048 | RAKE TOOTH | | | |
| 19 | 13260a | ADJUSTING BAR PIN, 1" X 3" | | | |
| 20 | 13328 | ADJUSTMENT BAR RECEIVER | | | |
| 21 | 13326 | LATERAL ADJUSTMENT BAR | | | |

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 |

Bolt Size and Bolt Torque Chart 12

PART NO.
14339

Tufline[®]