Pre-Delivery Manual

6000 Series Harrow
FH6424HD, FH6330HD, FH6336HD,
FH6642HD, FH6845HD, FH6848HD &
FH6851HD

Great Plains Manufacturing, Inc.
www.greatplainsmfg.com

Read the operator’s manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

Illustrations may show optional equipment not supplied with standard unit.
Table of Contents

**Important Safety Information** ................................. 1
**Introduction** ......................................................... 4
**Description of Unit** ............................................. 4
**Models Covered** .................................................. 4
**Document Family** ................................................ 4
**Tools Required** .................................................... 4
**Pre-assembly Checklist** ........................................ 4
**Using This Manual** ............................................... 5
**Definitions** .......................................................... 5
**Shipping** ............................................................. 6
**Unloading** ............................................................ 7
**Assembly and Setup Assistance** ............................ 7

**Assembly** ............................................................ 8
- Center Frame to Tongue ......................................... 8
- Wing Frame .......................................................... 9
- 400-600 Series Hydraulics ..................................... 10
- 800 Series Hydraulics .......................................... 12
- Attach Hose Clamps and Hose Wraps .................... 14

**Hydraulic Hose Hookup** ....................................... 14
**Hose Handles** ..................................................... 14
**Hydraulic Purging** .............................................. 15
**Wing Support** .................................................... 16
**Mount Cable Lift Arms** ....................................... 17
**Attach Cables** ..................................................... 19
**Drag Arms** .......................................................... 20
**Light Brackets** .................................................... 20
**Attach Harrow Drags** .......................................... 20
**8 Bar Drag** .......................................................... 24
**12 Bar Drag** ........................................................ 24
**16 Bar Drag** ........................................................ 24

**Appendix - Reference Information** ........................ 31
**Torque Values Chart** ............................................ 31
**Tire Inflation & Warranty** ..................................... 32
**Hydraulic Connectors and Torque** ......................... 32

**Index** .................................................................. 33


Great Plains Manufacturing, Inc. provides this publication “as is” without warranty of any kind, either expressed or implied. While every precaution has been taken in the preparation of this manual, Great Plains Manufacturing, Inc. assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Great Plains Manufacturing, Inc. reserves the right to revise and improve its products as it sees fit. This publication describes the state of this product at the time of its publication, and may not reflect the product in the future.

Trademarks of Great Plains Manufacturing, Inc. include: Singulator Plus, Swath Command, Terra-Tine.
Registered Trademarks of Great Plains Manufacturing, Inc. include:
- Air-Pro, Clear-Shot, Discovator, Great Plains, Land Pride, MeterCone, Nutri-Pro, Seed-Lok, Solid Stand,
Brand and Product Names that appear and are owned by others are trademarks of their respective owners.

Printed in the United States of America
Important Safety Information

Look for Safety Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Use Adequate Lifting Means

The frame sections and gangs of this machine are extremely heavy. If using multiple lifters, make sure each is rated for at least its share of the load.

Prepare for Emergencies

▲ Be prepared if a fire starts
▲ Keep a first aid kit and fire extinguisher handy.
▲ Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.
Be Familiar with Safety Decals

▲ Read and understand the “Safety Decals” section of the Operators Manual.
▲ Read all instructions noted on the decals.
▲ Keep decals clean. Replace damaged, faded and illegible decals.

Wear Protective Equipment

▲ Wear protective clothing and equipment.
▲ Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.
▲ Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection such as earmuffs or earplugs.
▲ Because operating equipment safely requires your full attention, avoid wearing entertainment headphones while operating machinery.

Avoid High Pressure Fluids

Escaping fluid under pressure can penetrate the skin, causing serious injury.
▲ Avoid the hazard by relieving pressure before disconnecting hydraulic lines.
▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
▲ If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.

Use Safety Lights and Devices

Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
▲ Use flashing warning lights and turn signals whenever driving on public roads.

Use lights and devices provided with implement.

Keep Riders Off Machinery

Riders obstruct the operator’s view. Riders could be struck by foreign objects or thrown from the machine.
▲ Never allow children to operate equipment.
▲ Keep all bystanders away from machine during operation.
Shutdown and Storage

▲ Lower implement, put tractor in park, turn off engine, and remove the key.
▲ Secure Flex Harrow using blocks and supports provided.
▲ Detach and store Flex Harrow in an area where children normally do not play.

Tire Safety

Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.
▲ When inflating tires, use a clip-on chuck and extension hose long enough for you to stand to one side—not in front of or over tire assembly. Use a safety cage if available.
▲ When removing and installing wheels, use wheel-handling equipment adequate for weight involved.

Safety At All Times

Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.
▲ Be familiar with all machine functions.
▲ Operate machinery from the driver’s seat only.
▲ Do not leave machine unattended with tractor engine running.
▲ Do not stand between the tractor and machine during hitching.
▲ Keep hands, feet and clothing away from power-driven parts.
▲ Wear snug-fitting clothing to avoid entanglement with moving parts.
▲ Watch out for wires, trees, etc., when folding and raising machine. Make sure all persons are clear of working area.
Introduction

The Flex Harrow has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance, and safe operating practices will help the customer get years of satisfactory use from the machine.

Description of Unit

The FH6400HD, FH6600HD & FH6800HD Flex Harrow is a heavy-duty flexible-link spike harrow. It is a pull-type implement intended for towing directly behind a tractor, or behind another implement. The outer sections fold up and forward for narrow (12 ft 8 in) transport.

Models Covered

- FH6424HD  FH6000, 12-Bar, 24-Foot, Heavy-Duty
- FH6630HD  FH6000, 12-Bar, 30-Foot, Heavy-Duty
- FH6636HD  FH6000, 12-Bar, 36-Foot, Heavy-Duty
- FH6642HD  FH6000, 12-Bar, 42-Foot, Heavy-Duty
- FH6845HD  FH6000, 12-Bar, 45-Foot, Heavy-Duty
- FH6848HD  FH6000, 12-Bar, 48-Foot, Heavy-Duty
- FH6851HD  FH6000, 12-Bar, 51-Foot, Heavy-Duty

Document Family

- 564-070M  MANUAL 6424-6845HD FLEX H
- 564-070P  PART MAN 6424-6845HD FLEX H
- 564-070Q  PRE-DELIV MAN 6424-6845HD FH (this document)

Tools Required

- Basic Hand Tools
- Torque Wrench
- Fork Truck, Overhead Hoist or Loader

Pre-assembly Checklist

- Before assembling, read and understand “Important Safety Information” in front part of this manual.
- Have at least two people on hand while assembling.
- Make sure area is level and free of obstructions (preferably an open concrete area).
- Have all major components
- Have all fasteners and pins shipped with machine.
Using This Manual

This manual was written to help you assemble and prepare the new machine for the customer. The manual includes instructions for assembly and setup. Read this manual and follow the recommendations for safe, efficient and proper assembly and setup.

An operator’s and parts manual is also provided with the new machine. Read and understand “Important Safety Information” and “Operating Instructions” in the operator's manual before assembling the machine. Refer to the parts manual for proper part's identification. As a reference, keep the operator's and part's manual on hand while assembling.

The information in this manual is current at printing. Some parts may change to assure top performance.

Definitions

The following terms are used throughout this manual.

**NOTICE**

A crucial point of information related to the preceding topic. Read and follow the directions to remain safe, avoid serious damage to equipment and ensure desired field results.

Note: Useful information related to the preceding topic.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated. An orientation rose in some line art illustrations shows the directions of: Up, Back, Left, Down, Front, Right.
Shipping

The Flex Harrow will be shipped partially pre-assembled. The wing frames will be banded together on a pallet. Hydraulics will need hooked up and charged after center and wing frames are assembled.

Refer to Figure 3
- The front part of center frame will be shipped fully assembled as shown,

Refer to Figure 4
- The wing cylinders, drag arms and cable lift arms (Models 600 and 800 series) will be shipped banded to center frame.

Refer to Figure 5
- All fasteners, cables hoses and light brackets will be shipped in a box.
Unloading

Be sure the truck is on level ground, preferably concrete.

Centering components:
Be sure and center fork truck or chains (overhead hoist) on components so they won’t slide and cause injury.

1. Check the serial number on the mainframe against the shipping manifest. Major subassemblies, wrapped pallets and crates will be marked with this same serial number.

2. Remove crates and pallets marked for the implement to be unloaded. Spot them clear of the designated assembly area.

3. Remove any other major sub-assemblies secured to the trailer deck, other than the harrow mainframe. Spot them clear of the designated assembly area.

4. Depending on the dock available, it may be possible to tow the mainframe off the truck. Otherwise, hoist or lift the mainframe, and have the truck driven out from under it.

Key hoist objectives are:
• Use at least 3 hoist lines.
• Use implement structures suitable for the frame’s weight.
• Keep the implement center of gravity inside the lines.
• Attach so that lines cannot slip toward center or slip off if the load tilts.
• Use lines that are individually rated for at least half the load.
• Watch out for load swing as it leaves ground contact.

Assembly and Setup Assistance

To order additional copies of pre-delivery instructions or operator's and parts manuals, write to the following address. Include model numbers in all correspondence.

If you do not understand any part of this manual or have the assembly or setup questions, assistance is available. Contact:

Product Support
Great Plains Mfg. Inc., Service Department
PO Box 5060
Salina, KS 67402-5060

gp_web_cs@greatplainsmfg.com
(800)255-9215
Assembly

Center Frame to Tongue

Refer to Figure 6

Note: The tongue will be shipped pre-assembled. See “Parts Manual” for part numbers and description of parts.

5. Remove one 1/2 x 2 hex bolt ④ and 1/2 lock nut from both 1 1/2 x 10 pins ③ on rear of center frame assembly ②.

6. Attach center wing frame ① to center frame assembly ②, re-install the 1 1/2 x 10 pins ③, 1/2 x 2 hex bolts ④ and 1/2 lock nuts to secure.

7. The valve bracket ⑤ may be shipped on tube where it goes but will have to be removed and orientated as shown. Attach valve bracket ⑤ to center frame assembly ② with 1/2 x 4 1/32 x 5 1/4 u-bolts ⑥, 1/2 lock washers and 1/2 nuts.

8. Attach sequencing valve ⑦ to valve bracket ⑥ with 5/16 x 4 hex bolts ⑧, 5/16 lock washers and 5/16 nuts.

9. Do not hook up rod end of cylinders ⑥ to center wing frame ① until hydraulics are completely hooked up and purge of air. See hydraulic pages 10-12 for details.

10. Tighten all bolts with lock nuts snug, but do not torque. The rest of bolts may be tightened to specs, See “Torque Values Chart” on page 31.

Figure 6
Center Frame to Tongue
Wing Frame

Refer to Figure 7

11. Remove 1/2 x 2 hex bolts ④ and 1/2 lock nut from 1/2 x 20 3/4 pin ③ on both ends of center frame. Attach LH and RH wing frames ①, to center wing frame ②, re-install the 1 1/2 x 20 3/4 pins ③, 1/2 x 2 hex bolts ④ and 1/2 lock nuts to secure.

12. Attach tire/wheels ⑦ to 6-bolt hub/spindle assembly ⑧ with 9/16 lug nuts ⑦.

13. Attach base end of fold cylinders ⑨ to center wing frame ②, secure with 1 x 3 1/8 pin ⑩, 1.5 x 1.00 x.075 machine washers and 3/16 x 2 cotter pins. Bend cotter pins over to secure.

14. Do not hook up rod end of cylinders ⑨ to center wing frame ① until hydraulics are completely hooked up and purge of air. See hydraulic pages 10-12 for details.

15. Tighten all bolts with lock nuts snug, but do not torque. The rest of bolts may be tightened to specs, See “Torque Values Chart” on page 31.

Figure 7
Wing Frame
400-600 Series Hydraulics

Refer to Figure 8

Note: Hoses will be installed through center frame from hitch at the factory. All the fittings and hoses will need installed at this time. See 400-600 Series Implement Hydraulics (S/N GP-C1504B+) in “Parts Manual” for part numbers and descriptions of fittings and hoses. See “Hydraulic Connector ID” on page 32 for proper fitting torque values.

16. Install orifice plates to rod end of fold cylinders before installing the 90 degree elbows. Attach the 45 degree fittings to the base end of the fold cylinders.

17. Attach the 90 degree elbows to the rod end of fold cylinders, base end of lift cylinders and the rear port of the sequencing valve (five total).

18. Install the 3/4morb x 3/4mjc x 3/4mjc tee to rod end of lift cylinders.

19. Attach the straight fittings to the front and both sides of the sequencing valve.

20. Attach hoses to front of sequencing valve.

21. Route proper hoses length from “Parts Manual” as shown below.

22. Tighten all fittings and hoses, See “Hydraulic Connector ID” on page 32. Attach hose clamps and wraps in positions shown. See “Hose Clamp Assembly” on page 14 for proper clamp mounting.

23. Do not hook up rod end of cylinders and until hydraulics are completely hooked up and purge of air, See “Hydraulic Purging” on page 15.
Figure 8
400-600 Series Hydraulics
800 Series Hydraulics

Refer to Figure 9

Note: Hoses 12 will be installed through center frame from hitch at the factory. All the fittings and hoses will need installed at this time. See 800 Series Implement Hydraulics (S/N C1289B+) in “Parts Manual” for part numbers and descriptions of fittings and hoses. See “Hydraulic Connector ID” on page 32 for proper fitting torque values.

24. Install orifice plates 1 to rod end of fold cylinders 2 before installing the 90 degree elbows 3. Attach the 45 degree fittings 4, two, to the base end of the fold cylinders 2 and one, to base end of the right, lift cylinder 5.

25. Attach the 90 degree elbows 3 to the rod end of fold cylinders 1, base end of left, lift cylinder 6, the rear port, right ports and left, rear port of the sequencing valve (seven total).


27. Attach the straight fittings 7 to the front and front, left side of the sequencing valve.

28. Attach hoses 10 to front of sequencing valve.

29. Route proper hoses length from “Parts Manual” as shown below.

30. Tighten all fittings and hoses, See “Hydraulic Connector ID” on page 32. See “Hose Clamp Assembly” on page 14 for proper clamp mounting.

31. Do not hook up rod end of cylinders 2 and 3 until hydraulics are completely hooked up and purge of air, See “Hydraulic Purging” on page 15.
Figure 9
800 Series Hydraulics
Attach Hose Clamps and Hose Wraps

Refer to Figure 10
32. When all the hoses are hooked up and tightened properly, put hose clamps on hoses as shown.
33. Install hose wraps on hoses as needed.
Note: Be sure and get hoses and light wiring harness fastened properly so they do not drag. Check to be sure there is enough slack in hinge area when folding machine the first time.

Hydraulic Hose Hookup
34. Great Plains hydraulic hoses are color coded to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

<table>
<thead>
<tr>
<th>Color</th>
<th>Hydraulic Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Implement Hydraulics (2 hoses)</td>
</tr>
</tbody>
</table>

35. To distinguish hoses on the same hydraulic circuit, refer to hose handles. The hose under an extended-cylinder symbol feeds a cylinder base end. The hose under a retracted-cylinder symbol feeds a cylinder rod end.
36. Once all hoses are tightened, hook hoses to tractor

WARNING

High Pressure Fluid Hazard:
Relieve pressure before disconnecting hydraulic lines. Use paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury. Only trained personnel should work on system hydraulics.

Refer to Figure 11

Hose Handles
Hydraulic Purging

Refer to Figure 12

Note: When all the fittings and hoses are routed and hooked up the system will need purged of air. The system will need purged before the rod end of cylinders are hooked up as cylinders will not extend fully if hooked up. Be sure rod end of cylinders ① and ② are un-pinned and wood blocks ③ are put under cylinder to allow rod ends of cylinders to fully extend without hitting anything on machine.

37. Extend the lift ① and fold cylinders ② (green Handles) until cylinders are fully extended. Fully retract and extend the cylinders several times to purge air of system. Watch for leaks and retighten fittings if necessary.

38. Now the rod end of the lift cylinders ① may be hooked up with the 1 x 3 1/8 pins ④, 1.5 x 1.0 x 0.075 machine washer and 3/16 x 2 cotter pin. Bend cotter pin to secure.

39. The rod end of lift cylinders ② may be hooked up with the 1 x 4 1/2 pins ⑤, 1.5 x 1.0 x 0.075 machine washer and 3/16 x 2 cotter pin. Bend cotter pin to secure.

Figure 12
Hydraulic Purging
Wing Support
Refer to Figure 13

40. Attach wing support (1) to center frame plates (2) with 5/8 x 2 hex bolts (3), 5/8 lock washers and 5/8 nuts.

41. Slide vinyl cap (4) over pegs on wing support (1).

42. Bolts may be tightened to specs, See “Torque Values Chart” on page 31.

Figure 13
Wing Support
Mount Cable Lift Arms

Refer to Figure 14

Note: Model FH6400 does not have cable lift arms. For FH6400 models, continue at, See “Drag Arms” on page 20.

43. Attach a hoist ① to the top of a cable lift arm ②.

Refer to Figure 15

44. Position the arm behind the wing support cross member, near the arm base ③, and with the arm's spring lugs facing toward the base.

45. Select two springs ④ and connect them from the arm lugs to the top holes of the arm base ⑤.

Refer to Figure 16

\[\text{\textbf{CAUTION}}\]

Pinch Hazard:
Use two people for the next step. Wear gloves. Exercise care. The springs will be trying to pull the arm from your grasp, and can cause injury.

46. Using two people plus the hoist, carefully lift the arm ② against the spring tension and align the arm pivot lugs with the lower bolt holes of the arm base. Insert the 1/2 x 3 1/2 hex bolt ⑥.
Refer to Figure 17

47. Place 1/2 lock nut © on arm pivot bolt, Tighten snug, but be sure arm pivots freely.
48. Repeat steps 47-51 for the other arm.
Attach Cables

Refer to Figure 18

49. Attach one end of each cable ① to center frame lugs ② with 1 x 3 1/4 clevis pin ③, 1.5 x 1.0 x 0.075 machine washer ④ and 3/16 x 2 cotter pin. Bend cotter pin to secure.

50. Route cables under wing support ⑤.

51. Attach one end of each chain ⑥ to between the top holes of each cable lift arm ⑦, with 3/8 x 2 1/2 hex bolt ⑧ and 3/8 lock nut

52. Drape chain ⑥ from top of cable lift arm ⑦ to rear and towards outside wing frame. Remove any twists from chain.

53. Remove bolts from 5/16 x 1 1/4 utility clevis ⑨. Route cable ① through 5/16 x 1 1/4 utility clevis ⑨ and hook clevis to end link of chain ⑥, secure with bolt that was removed from clevis. Be sure cable is still under wing support.

54. Attach other end of cables ① to wing lugs ⑩ (on 600-800 Series Flex Harrows attach to Wing Adjustment) with 1 x 3 1/4 clevis pin ③, 1.5 x 1.0 x 0.075 machine washer ④ and 3/16 x 2 cotter pin. Bend cotter pin to secure.

55. Tighten all bolts with lock nuts snug, but do not torque.
Drag Arms
Refer to Figure 19
Note: Harrow arms are supplied in two lengths:

- ① short drag arm (100.5in, 255.3cm); These are used at the ends of the center wing, where the mounts have a rear offset to allow the fold cylinders to connect the wings.
- ② long drag arms (105.0in, 266.7cm); These are used at all other mounts.

56. Attach the two, short drag arms ① at the LH and RH outside mount of the center wing with 9/16 x 3 1/2 ZNYCR bolts ② and 9/16 ZNYCR top lock nuts.

57. Attach the long drag arms ② to the remaining mounts on left, center and right wing with 9/16 x 3 1/2 ZNYCR bolts ③ and 9/16 ZNYCR top lock nuts.

58. Tighten lock nuts to Grade 2 (70ft-lb) to avoid crushing arm tube.

Light Brackets
Refer to Figure 20

59. Attach light brackets ① to both sides of center frame with 1/2 x 3 1/2 hex bolts ②, 1/2 lock washers and 1/2 nuts.

60. Bolts may be tightened to specs, See “Torque Values Chart” on page 31

Attach Harrow Drags
Step by step instructions begin on page 23.

Refer to Figure 21
Each harrow model has a different combination of harrow drag sizes, counts and installation locations. See table on page 21.

12-row harrow drags (shown in black) are pre-assembled. Leading chains are pre-attached for 40° tooth angle.

Any drags with a side chain ③ at row 12 (or row 16 with drag extensions) are intended to connect to an adjacent drag on the same wing. Relocate chain as needed.

If the harrow was ordered with the 16-row option (#20), 4-row drag extensions (shown in gray) may be pre-assembled to 12-row drags (and if not, need to be dealer-attached).

Drag extensions ordered as accessories (shown in gray) are not pre-assembled to the 12-row drags.
Harrow Drag Identification

4.5ft 12R 564-041A

6ft 12R 564-043A

7.5ft 12R 564-045A

4.5ft 8R 564-101A

6ft 8R 564-102A

7.5ft 8R 564-103A

4.5ft Ext 564-042L

6ft Ext 564-044L

7.5ft Ext 564-046L

Figure 21
Harrow Drag Assemblies

Harrow Drag Layouts
General Drag Installation Guidelines

• Separate the drags if stacked on pallets. If possible, set them down with the front fold (chain end) on top.

• If any 4-row drag extensions are present but not yet installed, defer installation of them until after the 12-row drags are installed.

• If any row extension were ordered, and are being dealer-installed, defer installation until after 12-row and any option 4-row extensions are installed.

• Install drags for the standard 40° tooth angle unless the customer has otherwise arranged.

• Install drags from implement center outward, to minimize working near installed teeth.

• Center wing drags are always 6-foot size.

• On implements with more than four drag sections, left and right wing drags may be of different widths. Larger widths are toward the inside, smaller to outside.
- Connect leading chains first, then fold the arms down for connecting trailing chains.

- Connect/move linking chains last.

<table>
<thead>
<tr>
<th>Model</th>
<th>Left Wing</th>
<th>Center Wing</th>
<th>Right Wing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outside</td>
<td>Mid</td>
<td>Inside</td>
</tr>
<tr>
<td>FH6424HD</td>
<td>-</td>
<td>6 ft 8R</td>
<td>-</td>
</tr>
<tr>
<td>#20 4R Extension</td>
<td>-</td>
<td>6 ft 12R</td>
<td>-</td>
</tr>
<tr>
<td>564-059A</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>-</td>
</tr>
<tr>
<td>FH6630HD</td>
<td>4.5 ft 8R</td>
<td>4.5 ft 8R</td>
<td>4.5 ft 8R</td>
</tr>
<tr>
<td>#20 4R Extension</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>-</td>
</tr>
<tr>
<td>564-059A</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>-</td>
</tr>
<tr>
<td>FH6636HD</td>
<td>6 ft 8R</td>
<td>6 ft 8R</td>
<td>6 ft 8R</td>
</tr>
<tr>
<td>#20 4R Extension</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>564-059A</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>FH6642HD</td>
<td>7.5 ft 8R</td>
<td>7.5 ft 8R</td>
<td>7.5 ft 8R</td>
</tr>
<tr>
<td>#20 4R Extension</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>564-059A</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>FH6845HD</td>
<td>4.5 ft 8R</td>
<td>6 ft 8R</td>
<td>6 ft 8R</td>
</tr>
<tr>
<td>#20 4R Extension</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>564-059A</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>FH6848HD</td>
<td>6 ft 8R</td>
<td>6 ft 8R</td>
<td>6 ft 8R</td>
</tr>
<tr>
<td>#20 4R Extension</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>564-059A</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>FH6851HD</td>
<td>6 ft 8R</td>
<td>7.5 ft 8R</td>
<td>7.5 ft 8R</td>
</tr>
<tr>
<td>#20 4R Extension</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
<tr>
<td>564-059A</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
<td>6 ft Ext</td>
</tr>
</tbody>
</table>

564-070Q 01/14/2014
Install Center Drags

61. Pick an area large enough to lay out all the drags, as they will be arranged when installed. Allow room to back the implement up to this area, and once leading chains are attached, pull forward to extend drags to full length.

Refer to Figure 22 and Figure 21 on page 21

62. Identify the drags to use on the center wing. These are always two 6-foot sections:
   - 564-043A6FT 12 ROW DRAG or
   - 564-102A 6 FT 8 ROW DRAG
   If one of this part-numbered drags has a side chain (31 in Figure 21 on page 21), place it so that the chain is to wing center.

63. Lay the drag out flat.

64. Back the implement up to the drag. Raise the arms up. Leave the wings unfolded.

65. Remove fasteners from free ends of leading chains:
   - 802-722C HHCS 9/16-12X3 1/2 GR5 ZNYCR
   - 803-319C NUT HEX TOP LOCK 9/16-12 ZNYCR

Refer to Figure 23

66. For the standard 40° tooth angle secure each chain (30) to the lower holes in the mount (between the plates), using bolts (51) and lock nuts (60). Tighten nuts only to Grade 2 torque specification.

For the alternate 22° tooth angle, use the upper holes. Using 22° also requires chain relocation. See Tooth Angle in “Operator’s Manual” for details.
8 Bar Drag

Refer to Figure 24

Note: 8 bar drag attaches same way as the front 8 rows of 12 bar drag, except when attaching the rear chain if not already assembled on lower spike tooth bracket, be sure and use bolt instead of.

802-082C HHCS 1/2-13X1 3/4 GR5
802-128C HHCS 1/2-13X2 GR5

12 Bar Drag

Refer to Figure 24

67. Lower the arms.
68. Remove fasteners from free ends of trailing chains:
   802-024C HHCS 3/8-16X3 GR5
   803-013C NUT LOCK 3/8-16 PLT

   Secure free ends of chains to arm with bolts and lock nuts. Tighten nuts only to Grade 2 torque specification.
69. Repeat step 63 through step 71 for the other center drag.

16 Bar Drag

Refer to Figure 25

Note: The 16-row option will be shipped with the two 4-bar sections (8-bar) attached, on pallet and they will need fasten together with the rear link of rear pull chain and bolts as shown below.

70. Lower the arms.
71. Remove fasteners from free ends of trailing chains:
   802-024C HHCS 3/8-16X3 GR5
   803-013C NUT LOCK 3/8-16 PLT

   Secure free ends of chains to arm with bolts and lock nuts. Tighten nuts only to Grade 2 torque specification.
72. Repeat step 70 through step 71 for the other center drag and wings.
Install Wing Inside Drags

Refer to Figure 26 and Figure 21 on page 21

73. Identify the drags to use on the inside of each wing. These are always the widest of remaining sections. If any of these drags has a side chain (in Figure 21 on page 21), place it so that the chain is to wing center.

74. Lay two of this size drag out flat either side of the center wing width.

75. Back the implement up to the drags. Raise the arms up. Leave the wings unfolded.

76. Remove fasteners from free ends of leading chains:
   - 802-722C HHCS 9/16-12X3 1/2 GR5 ZNYCR
   - 803-319C NUT HEX TOP LOCK 9/16-12 ZNYCR

Refer to Figure 27

77. For the standard 40° tooth angle secure each chain to the lower holes in the mount (between the plates), using bolts and lock nuts. Tighten nuts only to Grade 2 torque specification.

   For the alternate 22° tooth angle, use the upper holes. Using 22° also requires chain relocation. See Tooth Angle in “Operator’s Manual” for details.

Refer to Figure 28

78. Lower the arms.

79. Remove fasteners from free ends of trailing chains:
   - 802-024C HHCS 3/8-16X3 GR5
   - 803-013C NUT LOCK 3/8-16 PLT

   Secure free ends of chains to arm with bolts and lock nuts. Tighten nuts only to Grade 2 torque specification.

If this is a model FH6400 harrow, 12-row drag installation is complete. Continue at “Install 4-Row Drag Extensions” on page 28.
Install Mid-Wing Drags

If this is a model FH6600 harrow, there are no mid-wing drags. Continue at “Install Wing Outside Drags” on page 27.

Refer to Figure 29 and Figure 21 on page 21

80. Identify the drags to use on the inside of each wing. If any of these drags has a side chain (51 in Figure 21 on page 21), place it so that the chain is to wing outside (or inside if the inside drag did not have a chain).

81. Lay two of this size drag out flat either side of the wing inside drags.

82. Back the implement up to the drags. Raise the arms up. Leave the wings unfolded.

83. Remove fasteners from free ends of leading chains 50:
   51 802-722C HHCS 9/16-12X3 1/2 GR5 ZNYCR
   52 803-319C NUT HEX TOP LOCK 9/16-12 ZNYCR

Refer to Figure 30

84. For the standard 40° tooth angle secure each chain 50 to the lower holes in the mount (between the plates), using bolts 51 and lock nuts 52. Tighten nuts only until bolt does not rotate freely.

   For the alternate 22° tooth angle, use the upper holes. Using 22° also requires chain relocation. See Tooth Angle in "Operator’s Manual" for details.

Refer to Figure 31

85. Lower the arms.

86. Remove fasteners from free ends of trailing chains 29:
   39 802-024C HHCS 3/8-16X3 GR5
   38 803-013C NUT LOCK 3/8-16 PLT

   Secure free ends of chains 29 to arm with bolts 39 and lock nuts 38. Tighten nuts only to Grade 2 torque specification.
Install Wing Outside Drags

Refer to Figure 32 and Figure 21 on page 21

87. Identify the drags to use on the outside of each wing. These are always the narrowest of remaining sections. If any of these drags has a side chain (31) in Figure 21 on page 21, place it so that the chain is to wing outside (or inside if the inside or mid-wing drag did not have a chain on the outside).

88. Lay two of this size drag out flat either side of the wing inside or mid-wing drags.

89. Back the implement up to the drags. Raise the arms up. Leave the wings unfolded.

90. Remove fasteners from free ends of leading chains 30:
   31 802-722C HHCS 9/16-12X3 1/2 GR5 ZNYCR
   60 803-319C NUT HEX TOP LOCK 9/16-12 ZNYCR

Refer to Figure 33

91. For the standard 40° tooth angle secure each chain 30 to the lower holes in the mount (between the plates), using bolts 51 and lock nuts 63. Tighten nuts only to Grade 2 torque specification.

   For the alternate 22° tooth angle, use the upper holes. Using 22° also requires chain relocation. See Tooth Angle in “Operator’s Manual” for details.

Refer to Figure 34

92. Lower the arms.

93. Remove fasteners from free ends of trailing chains 29:
   39 802-024C HHCS 3/8-16X3 GR5
   53 803-013C NUT LOCK 3/8-16 PLT

   Secure free ends of chains 29 to arm with bolts 39 and lock nuts 53. Tighten nuts only to Grade 2 torque specification.
Install 4-Row Drag Extensions

This step is only required if the extensions were ordered as Option 20, and were not factory pre-attached to the 12-row drags. See Install Wing Extensions in “Operator’s Manual for details.

Connect Linking Chains

Refer to Figure 35
The trailing (bar 12 or bar 16) tubes of each wing with more than one drag (which always includes the center wing), are linked together with short chains provided. Chains may already be installed on one side of some connections. On 16 bar implements, chains may need to be moved from bar 12 to bar 16.

94. Each linking requires one:
   61 564-092D CHAIN 5/16 HIGH TEST 8 LINKS
95. To make a chain connection, remove the end set of:
   86 803-342C NUT HEX TOP LOCK 1/2-13 PLT
   86 891-238C HARROW TOOTH - 8 1/2" DIAMOND
96. Insert an end link of the chain in the trailing tube. On one end, twist the chain 1/4 turn to align the end link with the tube hole.
97. Reinstall the tooth 86. Tighten nut 61 only to Grade 2 torque specification, to avoid crushing tube.

Machine Damage Risk:
Do NOT link drag sections from wing to wing. The chains are not long enough to accommodate the distance required for wing folding.
Install Lights

The lights will be installed on brackets from factory. The 30’ light harness (93) will be run through tube on center frame with hydraulic hoses to front of center frame. The light harness connectors will be labeled on where they hook to.

Refer to Figure 36

98. Select one:
   - 833-693C LIGHT HARNESS, 30’ LEAD-LED
   - 833-694C LIGHT HARNESS, ENHANCE MODULE-LED
   - 833-695C LIGHT HARNESS, 12’ WISHBONE-LED
   and two:
   - 833-696C LIGHT, RED LAMP-LED
   - 833-697C LIGHT, AMBER LAMP-LED

99. Plug one end of light harness (95) into enhance module (94).

100.Plug big end of light harness (95) into enhance module (94) and other ends into appropriate red (96) and amber (97) light harness.

101.Fasten light harness up to frame with plastic ties or hose clips, be sure and leave enough slack to where the harness does not get pinched when folding.

Adjust Wing Fold Height

See Wing Fold Height Adjustment in “Operator’s Manual” for details.

Pre-Delivery Closeout

102.Remove all part tags. Wipe off all grease pencil part numbers.

103.Place all manuals, and any unused height adjustment shims, in the Manual-Pak®.

104.Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.

105.Check that all grease fittings are in place and lubricated. See Lubrication and Scheduled in “Operator’s Manual”.

106.Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See Safety Decals in “Operator’s Manual”.

107.Inflate tires to pressure recommended and tighten wheel bolts as specified. See “Tire Inflation & Warranty” on page 32.
## Appendix - Reference Information

### Torque Values Chart

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
<th>Grade 2</th>
<th>Grade 5</th>
<th>Grade 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>in-tpi(^a)</td>
<td></td>
<td>N-m(^b)</td>
<td>ft-lb(^d)</td>
<td>N-m</td>
</tr>
<tr>
<td>(\frac{1}{4})-20</td>
<td></td>
<td>7.4</td>
<td>5.6</td>
<td>11</td>
</tr>
<tr>
<td>(\frac{1}{4})-28</td>
<td></td>
<td>8.5</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>(\frac{5}{16})-18</td>
<td></td>
<td>15</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>(\frac{5}{16})-24</td>
<td></td>
<td>17</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>(\frac{3}{8})-16</td>
<td></td>
<td>27</td>
<td>20</td>
<td>42</td>
</tr>
<tr>
<td>(\frac{3}{8})-24</td>
<td></td>
<td>31</td>
<td>22</td>
<td>47</td>
</tr>
<tr>
<td>(\frac{7}{16})-14</td>
<td></td>
<td>43</td>
<td>32</td>
<td>67</td>
</tr>
<tr>
<td>(\frac{7}{16})-20</td>
<td></td>
<td>49</td>
<td>36</td>
<td>75</td>
</tr>
<tr>
<td>(\frac{1}{2})-20</td>
<td></td>
<td>66</td>
<td>49</td>
<td>105</td>
</tr>
<tr>
<td>(\frac{5}{8})-18</td>
<td></td>
<td>75</td>
<td>55</td>
<td>115</td>
</tr>
<tr>
<td>(\frac{5}{8})-24</td>
<td></td>
<td>95</td>
<td>70</td>
<td>150</td>
</tr>
<tr>
<td>(\frac{9}{16})-18</td>
<td></td>
<td>105</td>
<td>79</td>
<td>165</td>
</tr>
<tr>
<td>(\frac{9}{16})-24</td>
<td></td>
<td>130</td>
<td>97</td>
<td>205</td>
</tr>
<tr>
<td>(\frac{5}{8})-18</td>
<td></td>
<td>150</td>
<td>110</td>
<td>230</td>
</tr>
<tr>
<td>(\frac{5}{8})-10</td>
<td></td>
<td>235</td>
<td>170</td>
<td>360</td>
</tr>
<tr>
<td>(\frac{3}{4})-16</td>
<td></td>
<td>260</td>
<td>190</td>
<td>405</td>
</tr>
<tr>
<td>(\frac{7}{8})-9</td>
<td></td>
<td>225</td>
<td>165</td>
<td>585</td>
</tr>
<tr>
<td>(\frac{7}{8})-14</td>
<td></td>
<td>250</td>
<td>185</td>
<td>640</td>
</tr>
<tr>
<td>1-8</td>
<td></td>
<td>340</td>
<td>250</td>
<td>875</td>
</tr>
<tr>
<td>1-12</td>
<td></td>
<td>370</td>
<td>275</td>
<td>955</td>
</tr>
<tr>
<td>(\frac{1}{2})-7</td>
<td></td>
<td>480</td>
<td>355</td>
<td>1080</td>
</tr>
<tr>
<td>(\frac{3}{4})-12</td>
<td></td>
<td>540</td>
<td>395</td>
<td>1210</td>
</tr>
<tr>
<td>1-8</td>
<td></td>
<td>680</td>
<td>500</td>
<td>1520</td>
</tr>
<tr>
<td>1-6</td>
<td></td>
<td>750</td>
<td>555</td>
<td>1680</td>
</tr>
<tr>
<td>1(^{1/2})-12</td>
<td></td>
<td>890</td>
<td>655</td>
<td>1990</td>
</tr>
<tr>
<td>1(^{3/4})-6</td>
<td></td>
<td>1010</td>
<td>745</td>
<td>2270</td>
</tr>
<tr>
<td>1(^{1/2})-6</td>
<td></td>
<td>1180</td>
<td>870</td>
<td>2640</td>
</tr>
<tr>
<td>1(^{1/2})-12</td>
<td></td>
<td>1330</td>
<td>980</td>
<td>2970</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
<th>Class 5.8</th>
<th>Class 8.8</th>
<th>Class 10.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm x pitch(^c)</td>
<td></td>
<td>N-m</td>
<td>ft-lb</td>
<td>N-m</td>
</tr>
<tr>
<td>M 5 X 0.8</td>
<td></td>
<td>4</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>M 6 X 1</td>
<td></td>
<td>7</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>M 8 X 1.25</td>
<td></td>
<td>17</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>M 8 X 1</td>
<td></td>
<td>18</td>
<td>13</td>
<td>28</td>
</tr>
<tr>
<td>M10 X 1.5</td>
<td></td>
<td>33</td>
<td>24</td>
<td>52</td>
</tr>
<tr>
<td>M10 X 0.75</td>
<td></td>
<td>39</td>
<td>29</td>
<td>61</td>
</tr>
<tr>
<td>M12 X 1.75</td>
<td></td>
<td>58</td>
<td>42</td>
<td>91</td>
</tr>
<tr>
<td>M12 X 1.5</td>
<td></td>
<td>60</td>
<td>44</td>
<td>95</td>
</tr>
<tr>
<td>M12 X 1</td>
<td></td>
<td>90</td>
<td>66</td>
<td>105</td>
</tr>
<tr>
<td>M14 X 2</td>
<td></td>
<td>92</td>
<td>68</td>
<td>145</td>
</tr>
<tr>
<td>M14 X 1.5</td>
<td></td>
<td>99</td>
<td>73</td>
<td>155</td>
</tr>
<tr>
<td>M16 X 2</td>
<td></td>
<td>145</td>
<td>105</td>
<td>225</td>
</tr>
<tr>
<td>M16 X 1.5</td>
<td></td>
<td>155</td>
<td>115</td>
<td>240</td>
</tr>
<tr>
<td>M18 X 2.5</td>
<td></td>
<td>195</td>
<td>145</td>
<td>310</td>
</tr>
<tr>
<td>M18 X 1.5</td>
<td></td>
<td>220</td>
<td>165</td>
<td>350</td>
</tr>
<tr>
<td>M20 X 2.5</td>
<td></td>
<td>280</td>
<td>205</td>
<td>440</td>
</tr>
<tr>
<td>M20 X 1.5</td>
<td></td>
<td>310</td>
<td>230</td>
<td>650</td>
</tr>
<tr>
<td>M24 X 3</td>
<td></td>
<td>480</td>
<td>355</td>
<td>760</td>
</tr>
<tr>
<td>M24 X 2</td>
<td></td>
<td>525</td>
<td>390</td>
<td>830</td>
</tr>
<tr>
<td>M30 X 3.5</td>
<td></td>
<td>960</td>
<td>705</td>
<td>1510</td>
</tr>
<tr>
<td>M30 X 2</td>
<td></td>
<td>1060</td>
<td>785</td>
<td>1680</td>
</tr>
<tr>
<td>M36 X 3.5</td>
<td></td>
<td>1730</td>
<td>1270</td>
<td>2650</td>
</tr>
<tr>
<td>M36 X 2</td>
<td></td>
<td>1880</td>
<td>1380</td>
<td>2960</td>
</tr>
</tbody>
</table>

a. \(\text{in-tpi} = \text{nominal thread diameter in inches-threads per inch}\)
b. \(\text{N·m} = \text{newton-meters}\)
c. \(\text{mm x pitch = nominal thread diameter in mm x thread pitch}\)
d. \(\text{ft-lb = foot pounds}\)

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

Wheel Bolt Torque Values   \(1/2\)-20 (75-85 ft-lbs)   \(9/16\)-18 (80-90 ft-lbs)   \(5/8\)-18 (85-100 ft-lbs)
Tire Inflation & Warranty

Tire Inflation Chart

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire Size</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>12.5Lx15 SL</td>
<td>52 psi (360 kPa)</td>
</tr>
<tr>
<td>Wing</td>
<td>30x8.8x15 16-Ply Aircraft</td>
<td>60 psi (415 kPa)</td>
</tr>
</tbody>
</table>

Hydraulic Connectors and Torque

Refer to Figure 37 (a hypothetical fitting)
Leave any protective caps in place until immediately prior to making a connection.

① NPT - National Pipe Thread
Note tapered threads, no cone/flare, and no O-ring.
Apply liquid pipe sealant for hydraulic applications.
Do not use tape sealant, which can clog a filter and/or plug an orifice.

② JIC - Joint Industry Conference (SAE J514)
Note straight threads ⑤ and the 37° cone ⑦ on “M” fittings (or 37° flare on “F” fittings).
Use no sealants (tape or liquid) on JIC fittings.

③ ORB - O-ring Boss (SAE J514)
Note straight threads ⑤ and elastomer O-ring ⑦.
Prior to installation, to prevent abrasion during tightening, lubricate O-ring with clean hydraulic fluid.
Use no sealants (tape or liquid) on ORB fittings.
ORB fittings that need orientation, such as the ell depicted, also have a washer ⑧ and jam nut ⑥ (“adjustable thread port stud”). Back jam nut away from washer. Thread fitting into receptacle until O-ring contacts seat. Unscrew fitting to desired orientation. Tighten jam nut to torque specification.

Tire Warranty Information

All tires are warranted by the original manufacturer of the tire.
Tire warranty information is found in the brochures included with your Operator’s and Parts Manuals or online at the manufacturer’s web sites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Web site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firestone</td>
<td><a href="http://www.firestoneag.com">www.firestoneag.com</a></td>
</tr>
<tr>
<td>Gleason</td>
<td><a href="http://www.gleasonwheel.com">www.gleasonwheel.com</a></td>
</tr>
<tr>
<td>Titan</td>
<td><a href="http://www.titan-intl.com">www.titan-intl.com</a></td>
</tr>
<tr>
<td>Galaxy</td>
<td><a href="http://www.atgtire.com">www.atgtire.com</a></td>
</tr>
<tr>
<td>BKT</td>
<td><a href="http://www.bkt-tire.com">www.bkt-tire.com</a></td>
</tr>
</tbody>
</table>

Dash	| Fitting	| N-m	| Ft-Lbs
---|---------|------|------
-4  | 1/4-18 NPT	| 1.5-3.0 turns past finger tight |
-5  | 1/2-20 JIC	| 19-20	| 14-15 |
-5  | 1/2-20 ORB w/jam nut	| 12-16	| 9-12 |
-5  | 1/2-20 ORB straight	| 19-26	| 14-19 |
-6  | 5/16-18 JIC	| 24-27	| 18-20 |
-6  | 5/16-18 ORB w/jam nut	| 16-22	| 12-16 |
-6  | 5/16-18 ORB straight	| 24-33	| 18-24 |
-8  | 3/4-16 JIC	| 37-53	| 27-39 |
-8  | 3/4-16 ORB w/jam nut	| 27-41	| 20-30 |
-8  | 3/4-16 ORB straight	| 37-58	| 27-43 |
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
</tr>
<tr>
<td><strong>C</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>D</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>E</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>H</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>I</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>J</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>L</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>O</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>P</strong></td>
</tr>
<tr>
<td><strong>R</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>S</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>T</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>U</strong></td>
</tr>
<tr>
<td><strong>W</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Numerics**
- 12-Bar ..................................................... 4
- 12.5Lx15 SL ............................................. 32
- 22 degrees ............................................... 23
- 30x8.8x15 .............................................. 32
- 40 degrees ............................................... 23
- 564-041A, drag .......................................... 21, 22
- 564-042L, extension ...................................... 22
- 564-043A, drag .......................................... 21, 22, 23
- 564-044L, extension ...................................... 21
- 564-044L, extension ...................................... 22
- 564-045A, drag .......................................... 21, 22
- 564-046L, extension ...................................... 21
- 564-046L, extension ...................................... 22
- 564-057A, drag kit ...................................... 22
- 564-061A, drag kit ...................................... 22
- 564-063A, drag kit ...................................... 22
- 564-065A, drag kit ...................................... 22
- 564-066A, drag kit ...................................... 22
- 564-067A, drag kit ...................................... 22
- 564-068A, drag kit ...................................... 22
- 564-070M, manual ....................................... 4
- 564-070P, manual ....................................... 4
- 564-070Q, manual ....................................... 4
- 564-082D, chain ......................................... 28
- 802-024C, bolt .......................................... 24, 25, 26, 27
- 802-022C, bolt .......................................... 23, 24, 25, 26, 27
- 803-007C, nut ............................................ 29
- 803-013C, nut .......................................... 24, 25, 26, 27
- 803-019C, nut .......................................... 23, 24, 25, 26, 27
- 803-342C, nut .......................................... 28
- 890-311C, light ......................................... 29
- 891-238C, tooth ....................................... 28

01/14/2014
586-288Q