Quick-Reference Walk-Around Guide for Tillage Demonstrations

Includes the NEW 5-Section 637 Disk, NEW 2310 Mulch Finisher, and NEW 2510S Strip-Till Nutrient Applicator
1. COMPARATIVE OVERVIEW

<table>
<thead>
<tr>
<th></th>
<th>512</th>
<th>2700</th>
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</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>Primary tillage tool designed to cut and mix residue, breakup compaction, and leave a level soil profile</td>
<td>Primary tillage tool designed to cut and slice residue, breakup compaction, with an adjustable soil profile</td>
</tr>
<tr>
<td><strong>Level Soil Profile:</strong></td>
<td>Best</td>
<td>Good/Adjustable</td>
</tr>
<tr>
<td><strong>Residue Handling:</strong></td>
<td>10-40% remaining</td>
<td>15-70% remaining</td>
</tr>
<tr>
<td><strong>Required Horsepower:</strong></td>
<td>37-55 hp per standard</td>
<td>34-55 hp per standard</td>
</tr>
<tr>
<td><strong>Depth Control:</strong></td>
<td>Single point (opt. TouchSet)</td>
<td>Single point (opt. TouchSet)</td>
</tr>
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</table>

2. PRODUCTIVITY

**One-Pass Tillage:**
Ability to size residue, mix soil, and breakup yield-robbing compaction while saving time and fuel

**Speed:**
5 to 6 mph

**Three Sizes:**
- 5 standards, 12 ft. 6 in. working width (15 ft. 6 in. transport)
- 7 standards, 17 ft. 6 in. working width (20 ft. 8 in. or optional narrow 18 ft. transport)
- 9 standards, 22 ft. 6 in. working width (18 ft. transport)

**Single-Point Depth Control:**
Convenient one place location of depth control provides an infinite range of settings to increase productivity

3. AGRONOMIC SOLUTION

**Size and Manage Residue:**
Disks size and incorporate residue to flow through spring tillage tools and leave a level soil profile

**Shatter Soil Compaction:**
Ripper shanks fracture soil compaction down to 16 inches deep for improved nutrient and moisture availability to plants

**Level Soil Profile:**
Walk-Over tandem wheels give added support and stability for smoother operation in the field and during transport

**Adjustable Rear Gang Angle:**
Front: 18°; Back: 16° for aggressive disking in heavy residue, or 14° to optimize performance in lighter soils and low residue

4. VERSATILITY

**Ripper Shank:**
Standard has three-position adjustment allowing maximum disk penetration while addressing shallow soil compaction

**New LaserRip Extreme Ripper Points:**
Four sizes (2.75, 5, 7, and 10 in.) allow a wide range of choice in ground-engaging components

5. DURABILITY

**Disk Gangs:**
- C-spring standards protect gangs from obstacles
- Rugged Dura-Flex bearings
- 24x.256-in. blades spaced 11 in.

**Built Tough:**
Redesigned frame handles higher horsepower tractors and evenly distributes loads

**Cushion-Trip Ripper Standard:**
4,100-lb. trip force, shear-bolt protected above 13 in. (optional wear shins)

**Spring-Reset Ripper Standard:**
Used where large rock or ledge rock are present; 3,200- to 5,300-lb. trip force (optional wear shins)

**New LaserRip Extreme Ripper Points:**
- Up to 1/2-in. thicker in wear areas for extended life
- Mounting hole enlarged for bolt protection
1. COMPARATIVE OVERVIEW

<table>
<thead>
<tr>
<th></th>
<th>637 Regular</th>
<th>637 WheatLand</th>
<th>637 Rock</th>
<th>637 Blackland</th>
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<tbody>
<tr>
<td>Spacing</td>
<td>7.25 and 9 in.</td>
<td>9 in.</td>
<td>9 in.</td>
<td>9 in. front, 11 in. rear</td>
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<tr>
<td>Disk Thickness</td>
<td>.197 in.</td>
<td>.177 and .197 in.</td>
<td>.256 in.</td>
<td>.256 in.</td>
</tr>
<tr>
<td>Disk Width</td>
<td>22 in. (24 in. optional)</td>
<td>22 in. (24 in. optional)</td>
<td>24-in. higher concavity</td>
<td>24-in. higher concavity</td>
</tr>
<tr>
<td>Penetration</td>
<td>Good</td>
<td>Better</td>
<td>Best</td>
<td>Best</td>
</tr>
<tr>
<td>Seedbed Prep</td>
<td>Best (7.25 in. spacing)</td>
<td>Better</td>
<td>Better</td>
<td>Good</td>
</tr>
<tr>
<td>Soil Texture</td>
<td>Sand, silt, loam</td>
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<td>Sand, silt, loam, clay loam</td>
<td>Sand, silt, loam, clay loam, heavy clay</td>
</tr>
<tr>
<td>Rocks</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Residue Incorporation</td>
<td>Good</td>
<td>Better</td>
<td>Better/best</td>
<td>Best</td>
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<tr>
<td>Average Weight per Blade (base equipment)</td>
<td>105 lb. (7.25 in. rigid)</td>
<td>133 lb. (9 in. rigid)</td>
<td>139 lb. (9 in. rigid)</td>
<td>175 lb. (9 in. front/11 in. rear flex)</td>
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<td>Spacing</td>
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2. PRODUCTIVITY

Speed: 4 to 6 mph

Required Horsepower: 6 to 11 hp per foot

Working Widths: 12 ft. 2 in. to 37 ft. 10 in.

Single-Point Depth Control: Convenient one-place location of depth control provides an infinite range of settings to increase productivity

3. AGRONOMIC SOLUTION

Adaptable to Varying Soil & Residue Conditions:
Ample blade spacing and thickness with the right weight per blade and blade spacing to match regional conditions and producer needs; Diamond Series disk blades penetrate hard ground to size residue

Residue Incorporation:
Disk gangs size and bury residue while preparing a seedbed

Level Soil Profile:
• Walking tandem wheels support frame for more consistent depth in uneven terrain
• Double-action front-to-rear springs keep disks stable in rough terrain and varying soil types; improves disk stability with rear attachment
• C-cushioned middle breaker cuts out center bulk for a level soil profile and full-width tillage

4. VERSATILITY

Single-Point Depth Control: Consistent and easy adjustment

Crank Fore and Aft Adjustment:
Allows for fine-tune adjustment of fore/aft levelness (optional hydraulic fore/aft; ability to change on the go from the cab)

Hydraulic Wing Control
• Improved penetration in tough ground/heavy conditions
• Better control in soft soils

Attachments
3-bar coil tine harrow or optional hitch for towing a rolling basket
5. DURABILITY

Plug-In Spindles:
Improved bearing serviceability

Warranties:
3-year warranty on frame, hitch, gang spools, gang bolts; 2-year warranty on Dura-Flex bearings

Gang Bolt:
Heavy-duty disk gangs are 15% stronger at the bearing hanger than competitor models; the .225-in. sleeve assembly adds strength to the 1.25-in. gang bolt to resist bending 15% more than disks with 1.75-in. gang bolts

Timing Tube, Wheel Pivot Joints:
Now made of Grade 8 hardware for higher torque levels; timing tube bolts can be torqued to 200 ft-lb, wheel pivot joints to 500 ft-lb.

HIGHLIGHTS

The 5-Section 637 Disk has many of the same field-proven features found on the entire line of 637 disks; here are some features unique to the 5-section machines:

- RockDisk Configuration
- Spacing: 9 in.
- Blade Size: 24x0.256-in. regular concavity
- Speed: 4 to 6 mph
- Required Horsepower: 9 to 13 hp per foot
- Available attachment: 3-bar coil-tine harrow

Residue Incorporation:
- Average weight per blade (base equipment) of 210 lbs.
- Aggressive front gang angle provides excellent residue sizing and mixing

Working Widths:
42 ft. 4 in. to 45 ft. 2 in.

Transport Dimensions:
16 ft. 3 in. wide, 13 ft. high

Single-Point Depth Control:
- Convenient one-place location of depth control provides an infinite range of settings to increase productivity
- Integrated castering front stabilizer wheels maintain proper depth across the entire working width

Warranties:
3-year warranty on frame, hitch, gang spools, gang bolts; 2-year warranty on Dura-Flex bearings

1. Long, narrow, level-lift hitch
2. Single-point depth control
3. Double-action front-to-rear leveling
4. Front disk gang
5. Integrated castering stabilizer wheels
6. Tandem Walk-Over wheels
7. Rear disk gang; scrapers
8. C-cushioned middle breaker
9. Finishing attachment
1. OVERVIEW
Description:
Designed for primary tillage in fields with low to high residue for a one-pass operation by combining disk or coulter gangs with chisel plow standards

Required Horsepower:
12 to 20 hp per standard

Residue Handling:
Up to 100% initial residue

Depth Control:
Single point

2. PRODUCTIVITY
Speed:
5 to 7 mph

Working Widths:
- 6 ft. 3 in. to 21 ft. 3 in. (coulter)
- 6 ft. 3 in. to 16 ft. 3 in. (disk)

Shank Spacing:
15-in. shank spacing

Single-Point Depth Control:
Convenient one-place location of depth control

One-Pass Tillage:
Combines two tillage passes into one, reducing time, fuel, and manpower requirements

3. AGRONOMIC SOLUTION
Surface Residue Conservation:
Wide variety of sweeps, shovels, and chisel points allows the operator to match the tool to soil and residue conditions; conserves surface residue and maintains ground profile for various soil and weather conditions
- 3- and 4-in. concave twisted shovels bury the most residue of all the points
- 3- and 4-in. flat twisted shovels provide excellent soil to trash mixing and compaction control
- Chisel spikes for tough chiseling
- Sweeps: low-crown, medium-crown, Tru-Width provide excellent soil mixing and residue retention; go with Tru-Width Wing for more aggressive field conditions

4. VERSATILITY
Three Choices of Standards:
- Rigid
- Spring-reset (650-lb. trip force)
- Tru-Depth (1,250-lb. trip force)

Adjustable Spring Cushion
Front Disk/Coulter Gang:
Depth-adjuster bolts on two-bar machines allow gang depth changes
- Coulter: 20x.197 in.; good sizing, hydraulic adjustment
- Disk: 20x.256 in.; more residue burying, ratchet adjustment
- All on 9-in. spacing

5. DURABILITY
Front Disk/Coulter Gang:
C-spring mounted disk gang for protection from rocks and other obstructions

Dura-Flex Bearings:
Dura-Flex bearings on front gang for longer life and reliability; two-year warranty on Dura-Flex bearings

1. Single-point depth control, turnbuckle hitch leveling
2. Front disk/coulter gangs
3. Standards
4. Wheels
1. OVERVIEW
Description:
- Used in all residue levels
- Ability to rip or subsoil at a depth of 23 in. when equipped with shear-bolt standard

Required Horsepower:
- 5 x 7 in. frame: up to 225 hp
- 7 x 7 in. frame: up to 360+ hp

Depth Control:
Integral units are controlled by tractor, rockshaft, and gauge wheels

2. PRODUCTIVITY
Speed:
5 to 6 mph; V-style frame reduces draft

Working Widths:
14 widths ranging from 8.33 ft. to 22.92 ft.

3. AGRONOMIC SOLUTION
Weed-Killing Action:
24-in. subsurface knives undercut roots of moisture-sapping weeds

Variable Soil & Residue Disturbance:
Choose smooth or rippled coulters to vary the amount of soil and residue disturbance

Fracture Soil Compaction:
Shatter soil compaction down to 23-in. deep for better nutrient and moisture availability to plants

4. VERSATILITY
Gauge Wheels:
Maintain constant ripping depth

New LaserRip Extreme Ripper Points:
2.75-, 5-, 7-, and 10-in. points allowing a wide range of choice in ground-engaging components

5. DURABILITY
Ripper Standards:
Four choices of standards ranging from economical shear bolt protection to heavy-duty spring reset rock standards

Frame:
- 5x7x3/8-in. tubing with 3, 4, 5, or 7 standards
- 7x7x1/2-in. tubing with 7, 9, 11, or 13 standards

New LaserRip Extreme Ripper Points:
- Up to 1/2-in. thicker in wear areas for extended life
- Mounting hole enlarged for bolt protection
## 1. OVERVIEW

**Description:**
The 2100 Minimum-till Ripper is designed to breakup subsoil compaction while leaving a smooth soil profile and retaining as much residue as possible for soil conservation; two models available: integral and drawn-hitch

**Required Horsepower:**
30 to 40 hp per standard

**Depth Control:**
- Integral units are controlled by tractor and rockshaft
- Depth is maintained on drawn units by a pressure-compensating flow divider, providing even raise and lower in all ground conditions; cylinder depth stops assist setting depth

## 2. PRODUCTIVITY

**Speed:**
4 to 5 mph

**Working Widths:**
7 ft. 6 in. to 22 ft. 6 in. with spacing options of 22, 24, 30, and 36 in. (on selected configurations)

## 3. AGRONOMIC SOLUTION

**Level Soil Profile:**
Adjustable closing wheels level the soil surface with 250 lb. of down pressure

**Residue Management:**
- Coulters cut through residue for smooth operation
- Choose smooth or rippled coulters to vary the amount of soil and residue disturbance
- Min-till points (wingless, 7 and 10 in.) on 3/4-in. shanks maintain surface residue

**Fracture Soil Compaction:**
Shatter soil compaction down to 16 inches deep for better nutrient and moisture availability to plants; ripper points fracture compaction while preserving surface residue

## 4. VERSATILITY

**Setback Brackets:**
- Allow staggered shank pattern for outstanding residue flow
- 5-shank unit can be converted to 7 shanks (brackets not required)
- Differing amounts of residue can be left on the surface depending on width of shanks, adjustments, etc.

**Transport Wheels:**
Transport (not gauge) wheels ensure straight travel and added frame support

**Choice of Ripper Points:**
- Best min-till points for fracturing: 7- and 10-in.; penetration: 7-in. and wingless; speed: wingless; residue retention: wingless; and low hp requirement: 2.75-in.
- New LaserRip Extreme points in four sizes (2.75, 5, 7, & 10 in.; see separate page for comparisons)

## 5. DURABILITY

**Ripper Standards:**
- .75-in. or 1.25-in. straight shear-bolt protected with wear shin
- Cushion-Trip standard has 2,100-lb. trip force, shear-bolt protected above 12-in. (optional wear shin)
- Replaceable wear shins control the amount of wear to the edge of the standard

**Frame:**
- 4x6x3/8-in. tubing with 3, 4, 5, or 7 standards
- 6x6x3/8-in. tubing with 9 standards

**Warranty:**
3-year warranty on all frame members and front hitch
1. COMPARATIVE OVERVIEW

<table>
<thead>
<tr>
<th>Level Lift</th>
<th>Floating Hitch</th>
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<tbody>
<tr>
<td>Speed:</td>
<td></td>
</tr>
<tr>
<td>Better</td>
<td>Best</td>
</tr>
<tr>
<td>Soil Profile, Residue Incorporation:</td>
<td></td>
</tr>
<tr>
<td>4.5 in.* good</td>
<td>4.5 in.* good</td>
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<tr>
<td>9 in. better</td>
<td>9 in. better</td>
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<tr>
<td>6 in. best</td>
<td>6 in. best</td>
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<tr>
<td>High Residue Handling:</td>
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<tr>
<td>4.5 in.* good</td>
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<td>6 in. better</td>
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<tr>
<td>9 in. best</td>
<td>9 in. best</td>
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<tr>
<td>Rolling Terrain:</td>
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<td>Better</td>
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<tr>
<td>Required Horsepower:</td>
<td>4 to 8 hp per ft.</td>
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<td>Depth Control:</td>
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<tr>
<td>Single point:</td>
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<tr>
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<tr>
<td>AccuDepth:</td>
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<td>best</td>
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</tbody>
</table>

*4.5 in. spacing with S-tines on selected models

2. PRODUCTIVITY

**Speed:**
5 to 8 mph (both models)

**Working Widths:**
- Level lift: 20 ft. 6 in. to 45 ft. 6 in.
- Floating hitch: 23 ft. 6 in. to 64 ft. 6 in.

**AccuDepth (floating hitch only):**
Precise in-cab depth control and frame leveling

**Single-Point Depth Control:**
Convenient one place location of depth control

**Floating Hitch:**
Consistent depth over rolling terrain at higher working speeds

3. AGRONOMIC SOLUTION

**Uniform Soil Mixing:**
Staggered, split-the-middle shank pattern provides uniform soil mixing and improved residue flow

**Smooth Seedbeds:**
TruPosition standards with 150- or 200-lb. trip force work at a consistent depth and create smooth seedbeds for enhanced seed placement (both in depth and spacing)

**Enhanced Residue Flow:**
Deep 134-in. frame enhances residue flow for heavier crop mats and reduced tillage passes

4. VERSATILITY

**Shank Spacing:**
- 6 or 9 in.; 4.5 in. with S-tines on selected models
- Offers the customer a choice based on crop conditions

**Perma-Loc:**
Quick-change sweep system for operator convenience

**Rear Attachments:**
3- and 4-bar coil tine, 5-bar spike tooth, 3-bar spike or 2-bar coil tine rolling basket; matches producer’s seedbed preferences in varying soil textures

5. DURABILITY

**Front-Mounted Rockshaft:**
- Level-lift model
- Adds torsional rigidity for stability in depth control at higher speeds

**Frame:**
Patented, 4x4-in. tube-through-tube frame construction provides the strength of a continuous piece of steel, ensuring consistent, even implement tracking; 3-year warranty on all frame members
1. OVERVIEW

Description:
Combines four tillage operations into one to save time and fuel: (1) aggressively slice and mix residue, (2) root out weeds, and build a seedbed by (3) tilling and conditioning soil and (4) leveling the soil surface.

Required Horsepower:
8.5 to 12 hp per foot

Residue Handling:
Up to 80% initial residue

Depth Control:
Single point

2. PRODUCTIVITY

Speed:
6 to 10 mph

Working Widths:
18 ft. 9 in. to 45 ft. 9 in.

Transport Dimensions:
12 ft. 6 in. wide and 8 ft. 8 in. high to 15 ft. 11 in. wide and 14 ft. 5 in. high

Single-Point Depth Control:
Convenient one-place location of depth control

3. AGRONOMIC SOLUTION

Soil and Residue Handling:
Sizes today’s thicker residue to mix with soil in a one-time spring tillage pass

Seedbed Preparation:
TruPosition standards with 200-lb. trip force work at a consistent depth and create smooth seedbeds for precise seed depth and spacing, promoting uniform emergence for higher yields. Harrows and rolling baskets provide smoother soil profiles with a consistent particle size for more accurate seed placement and seed-to-soil contact, contributing to better germination

Smooth Soil Surface Profile:
Perma-Loc sweeps feature quick-change system for operator convenience and smooth soil profiles

4. VERSATILITY

Shank Spacing:
9-inch split-the-middle shank-pattern spacing with 10-inch sweeps; ideal for smooth seedbeds and best residue flow in heavy conditions

Perma-Loc:
Quick-change sweep system for operator convenience

Rear Attachments:
5-bar coil tine, 6-bar spike tooth, 3-bar spike-tooth rolling basket, and 3-bar coil-tine rolling basket; matches producer’s seedbed preferences in varying soil textures. See “Harrow Comparison Chart” for more information

5. DURABILITY

Front Disk Gang:
C-spring mounted disk gang for protection from rocks and other obstructions

Dura-Flex Bearings:
Dura-Flex bearings on front gang for longer life and reliability; 2-year warranty

TruPosition Standards:
TruPosition standards offer excellent serviceability with replaceable shanks for longer life; 3-year warranty on standards

High-Density Polymer Bearings:
Decrease friction and increase life of rockshafts and bearings

Frame:
Stacked-style frame, 20% stronger tubes, and patented cast steel saddle joints give necessary strength to the frame; 3-year warranty
### 1. OVERVIEW

**Speed:**
- Best in class
- Floating hitch allows ground-hugging capability at higher working speeds
- Up to 1,250-lb. trip force
- Choice of four standards to match grower preference (see “Standards” in point number 4)

**Required Horsepower:**
6 to 14 hp per foot

**Residue Handling:**
- Better: 12 in. standard spacing
- Best: 16 in. standard spacing

**Depth Control:**
- Better: Single point
- Best: AccuDepth

### 2. PRODUCTIVITY

**Speed:**
5 to 7 mph

**Working Widths:**
12 ft. to 63 ft.

**AccuDepth:**
Precise in-cab depth control and frame leveling

**Floating Hitch:**
Consistent depth over rolling terrain at higher working speeds

### 3. AGRONOMIC SOLUTION

**Surface Residue Conservation:**
Wide variety of standards, sweeps, shovels, and chisel points allows the user to match the tool to farming practices; low-crown sweeps help achieve a smoother soil profile while medium-crown or Tru-Width sweeps stir the soil more

**Enhanced Residue Flow:**
Deep 134-in. frame provides enhanced residue flow for heavier crop residues

**Precise Depth Control:**
The floating hitch combined with Tandem Walk-over wheels provide unmatched stability for smooth operation in the field, precise depth control, consistent moisture levels, and fuel conservation

### 4. VERSATILITY

**Standards:**
Four choices allow versatility for different soil and rock conditions:
- Economical Rigid (8-in. depth, fields with few obstructions)
- TruPosition (8-in. depth, 550-lb. trip force, rocks or other obstructions)
- Spring-reset (12-in. depth; 650-lb. trip force; rocks, ledge rock, and other obstructions)
- Tru-Depth (12-in. depth, 1,250-lb. trip force, rocky ground and heavy draft conditions)

**240 Heavy-Duty Chisel Plow Harrow:**
Adjustable for varying crops and conditions and built strong to manage heavy soil and residue conditions; tines are 20-in. long and 0.531-in. diameter with 4-in. effective spacing

### 5. DURABILITY

**Front-Mounted Castering Wheels:**
Offers excellent front-frame support for stability and depth control with the floating hitch

**4x4-in. Framing**
Patented tube-through-tube frame construction provides the strength of a continuous piece of steel, ensuring consistent, even implement tracking
- 3-year warranty on all frame members

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2. PRODUCTIVITY

Speed:
5 to 8 mph

Working Width:
30 ft.

Transport Dimension:
18 ft. wide, 13 ft. 2 in. high (with dual-paddle baskets installed)

Reduced Maintenance:
- Fewer grease zirk fittings; fittings require no daily maintenance
- Maintenance-free DuraPac™ bearings

Tandem Walk-Over Wheels:
Allows added support and stability for smoother operation in the field and during transport

3. AGRONOMIC SOLUTION

Residue & Seedbed Management:
- Larger front coulter blades cut through tough residue for smooth operation; 15-in. spacing for maximum stalk sizing
- Deep 93-in. fore-to-aft length provides clearance for unmatched residue flow in high-yielding corn
- Adjustable closing disks allow for more or less tillage in the strip; rippled blades minimize soil build-up
- Unique rolling-basket design sizes clods and firms the berm with excellent residue flow

Fracture Shallow Soil Compaction:
Shatter shallow compaction down to 10-in. deep for better nutrient and moisture availability to plants

Nutrient Placement:
Unique point on the standard lifts the soil and creates a pocket for anhydrous, dry, or liquid fertilizer

4. VERSATILITY

Single-Point Depth Control:
Consistent and easy adjustment

Fore and Aft Adjustment:
Allows fine-tuning of fore/aft levelness

Nutrient Handling:
Three configurations allow for dry, liquid, and anhydrous formulations

Variable Soil & Residue Disturbance:
Front coulters, row cleaners, closing disks and dual-paddle baskets can be adjusted to match customer’s field conditions and preferences; berm width and height are determined by the customer

5. DURABILITY

Nutrient Shanks:
Spring-cushioned, on 30-in. spacing, has 1,300-lb. trip force for faster operating speeds while maintaining consistent seedbed and nutrient placement; welded wear strips for extra life

Frame:
Next-generation frame design, 4x6-in. tubular frame construction with patented cast steel saddles; 3-year warranty on frame

Frame-Mounted Rockshaft:
Adds torsional rigidity for stability in depth control at higher speeds, high-density polymer sleeve decreases friction and increase life of rockshafts and bearings

Dura-Flex™ Bearings:
Dura-Flex bearings on front gang for longer life and reliability; 2-year warranty
1. COMPARATIVE OVERVIEW

<table>
<thead>
<tr>
<th>2700</th>
<th>512</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td></td>
</tr>
<tr>
<td>Adjustable primary tillage tool designed to cut and slice residue, breakup compaction, and leave an adjustable soil profile</td>
<td>Primary tillage tool designed to cut and mix residue, breakup compaction, and leave a level soil profile</td>
</tr>
<tr>
<td>Level Soil Profile:</td>
<td>Good/Adjustable</td>
</tr>
<tr>
<td>Residue Handling:</td>
<td>15 to 70% remaining</td>
</tr>
<tr>
<td>Required Horsepower:</td>
<td>34 to 55 hp per standard</td>
</tr>
<tr>
<td>Depth Control:</td>
<td>Single point (opt. TouchSet)</td>
</tr>
</tbody>
</table>

2. PRODUCTIVITY

Speed:
5 to 6 mph

Five Working Widths:
- 12 ft. 6 in. (5 standards)
- 14 ft. (7 standards)
- 17 ft. (7 standards)
- 18 ft. (9 standards)

Single-Point Depth Control:
Convenient one-place location of depth control provides an infinite range of settings to increase productivity

Tandem Walk-Over Wheels:
Allows added support and stability for smoother operation in the field and during transport

3. AGRONOMIC SOLUTION

One-Pass Tillage:
Ability to size residue, mix soil, and breakup yield-robbing compaction while saving time and fuel

Residue Management:
Disk gangs size and incorporate residue to better flow through spring tillage tools and leave a level soil profile
- Optional coverboards bury more residue; available in sizes of 4, 6, and 8 in.; not recommended on 24-in. spaced machines

Compaction Management:
Shatters soil compaction down to 16 inches deep, improving nutrient and moisture availability to plants

4. VERSATILITY

Hydraulically Adjustable Disks:
Front disk depth is hydraulically adjustable with active down pressure to keep disks engaged

Hydraulically Adjustable Rear Conditioner:
More control of soil profile for better leveling

New LaserRip Extreme Ripper Points:
Four sizes (2.75, 5, 7, and 10 in.) allow a wide range of choice in ground-engaging components

5. DURABILITY

Front Disks:
- C-spring standards protect disks from obstacles
- Maintenance-free bearings
- 22x.256-in. blades on 17.25-in. spacing

LaserRip Extreme Ripper Points:
- Up to 1/2-in. thicker in wear areas for extended life
- Mounting hole enlarged for bolt protection

Cushion-Trip Ripper Standard:
4,100-lb. trip force, shear-bolt protected above 13 in. (optional wear shins)

Spring-Reset Ripper Standard:
Used where large rocks or ledge rocks are present; 3,200- to 5,300-lb. trip force (optional wear shins)

Warranty:
3-year warranty on all frame members

1. Fore/aft turnbuckle adjustment
2. Single-point depth control
3. Active hydraulic down-pressure for front disks
4. Soil probe; front disk gangs
5. DuraPak maintenance-free bearings
6. Walk-Over wheels
7. Standards; ripper points
8. Rear disk conditioners
1. COMPACTION

Compaction results when pressure applied to the soil rearranges soil particles, decreasing pore space and increasing soil density. While some ‘compaction’ can be beneficial for achieving seed to soil contact, soil compaction also may be detrimental to crop growth and yield.

**What causes compaction?** Soil compaction occurs when heavy pressure on the soil (from animals, tractors, combines, grain carts, etc.) reduces pore space in the soil. Soils that contain a lot of clay, or about equal proportions of sand, silt, and clay, are more prone to compaction. Plus, water can act as a lubricant, allowing easier compression of soil particles. That’s why wet soils compact more easily.

**The effects of compaction.** Compaction reduces pore space in soil, inhibiting water and air storage while impeding proper drainage. Plant roots have difficulty penetrating the soil, potentially restricting availability to moisture and nutrients, and ultimately affecting crop growth and yield. For most crops, yields can be affected when air space in the soil drops to 10 to 15% of the total soil volume. Some soils become so dense that roots simply cannot penetrate the compacted layer.

2. AVOIDING OR CORRECTING COMPACTION

Particularly on prone soils, it can be difficult to totally avoid compaction, as it will always be necessary to drive across the field to plant and harvest the crop. But compaction can be minimized by avoiding wet conditions, using correctly-inflated tires or tracked equipment, or by limiting traffic to previously existing tracks across the field. (Most of the compressive effects occur in the first pass over the soil). If the compaction occurs in the top layers of the soil, natural temperature and moisture cycles might help to reverse compaction, but when it occurs deep in the profile, tillage is the best remedy.

3. DETERMINING COMPACTION DEPTH

Choose an area in the field away from the end rows, free of wet spots or wheel traffic, and representative of the entire field. Sample in different areas of the field to test different soil types and elevations.

**Soil Probe Method:**
1. Press probe into ground slowly with consistent down pressure.
2. Note the depth additional force is needed to penetrate (this is the top of the compacted layer).
3. Continue to force the probe through this layer and note the depth less force is needed (this is the bottom of the compacted layer).
4. Continue in different areas of the field to identify compacted areas and depths.

Continued on next page.
3. DETERMINING COMPACTION DEPTH

Knife Blade Method:
1. Dig a soil pit about 16 inches deep and 24 inches wide.
2. Find the bottom of the compaction layer by pulling a pocketknife upward through the soil at a constant speed and pressure until it becomes more difficult to pull. Use a tape measure to record this bottom edge of the compacted zone.
3. Find the top of the compaction layer by pulling a pocketknife downward from the soil surface with even speed and pressure until it becomes more difficult to pull. Measure from the soil surface to the top of this compacted zone.

4. SETTING TOOL DEPTH

1. Determine compaction depth using the soil probe or knife method.
2. Run the tool in the ground at set depth (make sure the single point plate is touching the plunger.
3. Run at proper operating speed (5 to 6 mph).
4. Stop the tractor with the tool in the ground and put the tractor in park.
5. Smooth out soil around the shank to ground level; it is important to measure depth from ground level, not the soil blow-out level.
6. Use the soil probe behind the shank to determine how deep the shank is running by lightly pushing the soil probe into the slit made by the ripper, just until you feel the bottom.
7. Adjust the single-point depth or TouchSet depth control 1 to 2 inches below the hard pan. For example, if the probe indicated you are ripping 10 inches deep, your hard pan is at 11 inches; use single-point to add 2 inches to your depth so you are running at 12 inches.
8. Perform another pass and check depth to verify proper settings.

FIVE ADJUSTMENTS OF ALL TILLAGE TOOLS

1. **Level Fore to Aft:**
   - Important setting to ensure a level seedbed, proper cutting and sizing, and residue flow.
   - On level surface, ensure machine frame is level fore to aft.
   - Ensure the engagement tools and/or frame are level from front to rear.
   - Verify fore-to-aft level in field with tool at correct operating depth and speed.

2. **Level Side to Side:**
   - Important for even drafting of tillage tool in field operation and to ensure a level soil profile.
   - On level surface, level the machine side to side and ensure wing frame is level with mainframe.
   - Ensure the engagement tools and/or frame are level from side to side.
   - Verify side-to-side level in field with tool at correct operating depth and speed.

3. **Proper Depth:**
   - Important for proper soil movement, residue slicing, and compaction fracturing.
   - Use operator’s manual to determine recommended operating depth.
   - Machine wheels must support frame for consistent depth control.

4. **Proper Speed:**
   - Important for proper residue flow and soil movement.
   - Use operator’s manual to determine recommended speed.

5. **Proper Overlap:**
   - Important for field efficiency and even draft load of tillage tool.
   - Use operator’s manual to determine proper overlap.
1. COMPARATIVE OVERVIEW

<table>
<thead>
<tr>
<th>Single Point</th>
<th>AccuDepth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplicity:</td>
<td></td>
</tr>
<tr>
<td>Best</td>
<td>Better</td>
</tr>
<tr>
<td>Productivity (Adjustments):</td>
<td></td>
</tr>
<tr>
<td>Better</td>
<td>Best</td>
</tr>
<tr>
<td>Accuracy:</td>
<td></td>
</tr>
<tr>
<td>Better</td>
<td>Best</td>
</tr>
<tr>
<td>Field Condition Versatility:</td>
<td></td>
</tr>
<tr>
<td>Better</td>
<td>Best</td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
</tr>
<tr>
<td>Best</td>
<td>Better</td>
</tr>
</tbody>
</table>

2. PRODUCTIVITY

AccuDepth and Single-Point depth control options blanket the entire spectrum of owner and operator requirements for both field cultivators and chisel plows.

**Single Point:**
Convenient one place location of depth control provides an infinite range of settings to increase productivity.

**AccuDepth:**
Offers on-the-go fine-tuning adjustments to meet changing field conditions; allows the operator to have better control of the implement to prevent it from operating too deeply, thus conserving soil moisture and fuel.

3. AVAILABILITY

**Single Point:**
- Available on all chisel plows and field cultivators

**AccuDepth:**
- Available on floating-hitch field cultivators and all chisel plows

4. CUSTOMER CHOICE

**Single Point:**
- Simplicity
  - Single adjustment handle
- Tractor diversity
  - Works on all tractors
- Off-tractor adjustments
  - Depth
  - Side-to-side leveling

**AccuDepth:**
- Operator convenience:
  - Electronic in-cab control
  - Easy-to-learn and easy-to-use system
- GreenStar ready
  - Uses full technology of a dedicated tractor
- In-cab adjustments
  - Depth
  - Side-to-side leveling
LaserRip Extreme Ripper Points
Size Fracturing Versatility

<table>
<thead>
<tr>
<th>Size</th>
<th>Fracturing</th>
<th>Versatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.75 in.</td>
<td>Good</td>
<td>Extreme points fit 1.25-in. parabolic standards on: John Deere, Brillion, CNH, DMI, Krause, Landoll, New Holland, and Wil-Rich</td>
</tr>
<tr>
<td>5 in.</td>
<td>Better</td>
<td></td>
</tr>
<tr>
<td>7 in.</td>
<td>Better</td>
<td></td>
</tr>
<tr>
<td>10 in.</td>
<td>Best</td>
<td></td>
</tr>
</tbody>
</table>

Customer Benefits
- Extend life
- Better bolt head protection
- Wings are top plated for better penetration
- More material added to the top and nose for increased wear benefits

(For more information, see Bulletin 032668)

Dealer Benefits
- Less SKUs to stock; decreased by 25%
- Fits other equipment brands

Extreme Design (#N238628)

DMI
Brillion
Krause (TL3000)
Landoll
CNH
New Holland

Top plating for improved penetration in hard ground

Large pocket so bolt head fits inside for protection

Deere
Wil-Rich
Krause (TL3606)
### Regular-Duty Ripper Points

<table>
<thead>
<tr>
<th>Size</th>
<th>Fracturing</th>
<th>Versatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.75 in.</td>
<td>Good</td>
<td>Regular-duty points fit 1.25-in. parabolic standards on: Brent, M&amp;W, and Sunflower</td>
</tr>
<tr>
<td>7 in.</td>
<td>Better</td>
<td></td>
</tr>
</tbody>
</table>

**Customer Benefits**
- 31% more fracturing and 5% less draft
- Exclusive cast material avoids rock chipping

*(For more information, see Bulletin 033037)*

**Dealer Benefits**
- More competitive line
- Fits Sunflower, M&W and Brent

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### Min-till Ripper Points

<table>
<thead>
<tr>
<th>Point</th>
<th>Fracturing</th>
<th>Penetration</th>
<th>Speed</th>
<th>Sensitivity</th>
<th>Residue</th>
<th>Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wingless</td>
<td>Good</td>
<td>Best</td>
<td>Best</td>
<td>Best</td>
<td>Best</td>
<td>Best</td>
</tr>
<tr>
<td>7 in.</td>
<td>Best</td>
<td>Best</td>
<td>Best</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
</tbody>
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*(For more information, see Bulletin 008155)*

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### DMI Standard Upgrade

Includes wear shin and standard

**Customer Benefits**
- Fits DMI 2500 min-till ripper
- Provides life-long wear over the 1-2 year replacement of the standard
- Increased productivity
- Access to three solutions to provide the proper soil disturbance

*(For more information, see Bulletins 009167, 008155)*

**Dealer Benefits**
- Once DMI customer is converted to a JD standard for their min-till ripper, only JD min-till ripper points will fit
- Ability to recondition DMI trade-ins
Perma-Loc

Customer Benefits
- Easy installation
- Self-tightening
- Time-saving: nine times faster to change than bolt-on

Compatible with:
- Kent, Krause, DMI, Brillion, Sunflower, and Wil-Rich
  *(This is not the entire list; for the entire list, see Bulletin 031208)*

Disk Blades

Diamond Series Disk Blades
Made of Boron

Customer Benefits
- Retains outside diameter for longer life
- Maintains a sharper edge
- Penetrates hard ground to size residue

New “Rollable Edge” Disk Blades
- Designed for customers utilizing edge-rolling practices for disk blade sharpening. *(For more information, see Bulletin 038160.)*

Notes