MORRIS

Customer Clinic 2017


RAZR
RAZR
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Precision

Parallel Linkage

- Each opener is completely independent resulting in superior ground following.
- Compact linkage arms tuck away nicely in transport.
- Non-greased composite linkage bushings
- 16” of operating travel (8” up and down)
- Allows for constant down force with a cylinder on each opener

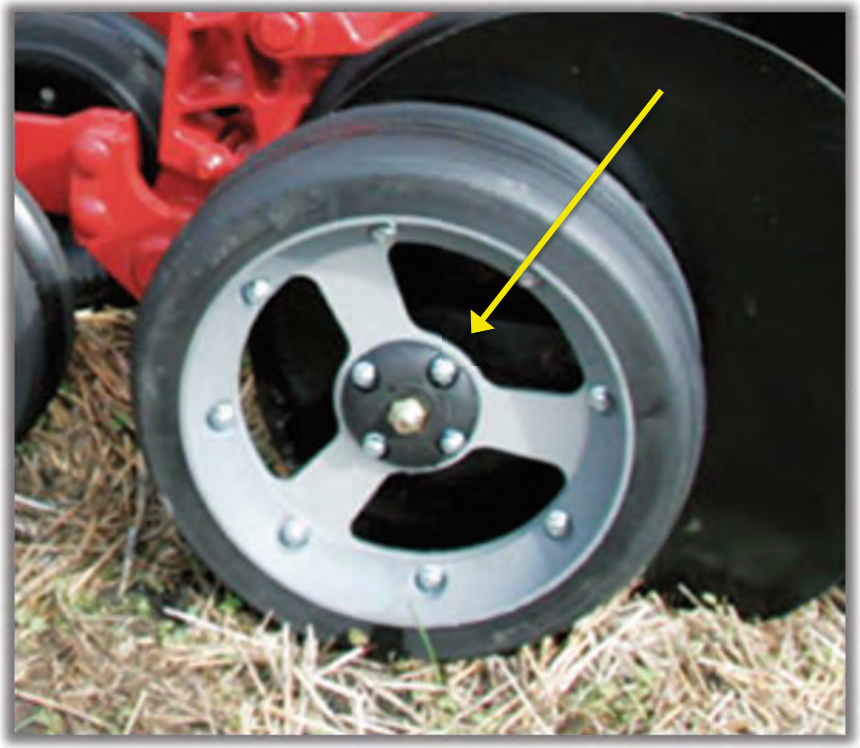
Opener Design

Gauge Wheels

- 4.5” width spoked wheel that regulates seeding depth and eliminates mud-build up and plugging
- A 3” wide spoked wheel is available for growers wanting to seed between stubble rows and minimize stubble knockdown.
- Steel hub holds bearing
- Mudsmith tire (right) used on U.S. machines. Otico tire used in other markets.

Gauge Wheels

Shims allow for adjustment of the gauge wheel lip pressure to the blade; this pressure can be “light” or “just contacting” in most cases, but the gauge wheel tire lip can be shimmed tighter against the coulter blade in wet or sticky mud conditions in order to prevent soil build up on the outside of the disc blade.



Opener Design

Disc Blades

- 20.4” diameter for long wear life
- Simple blade angle of 5 degrees for consistent seed furrow formation.
- Reduced blade angle results in less furrow smearing compared to other disc drills
- Ingersoll Boron-treated blade

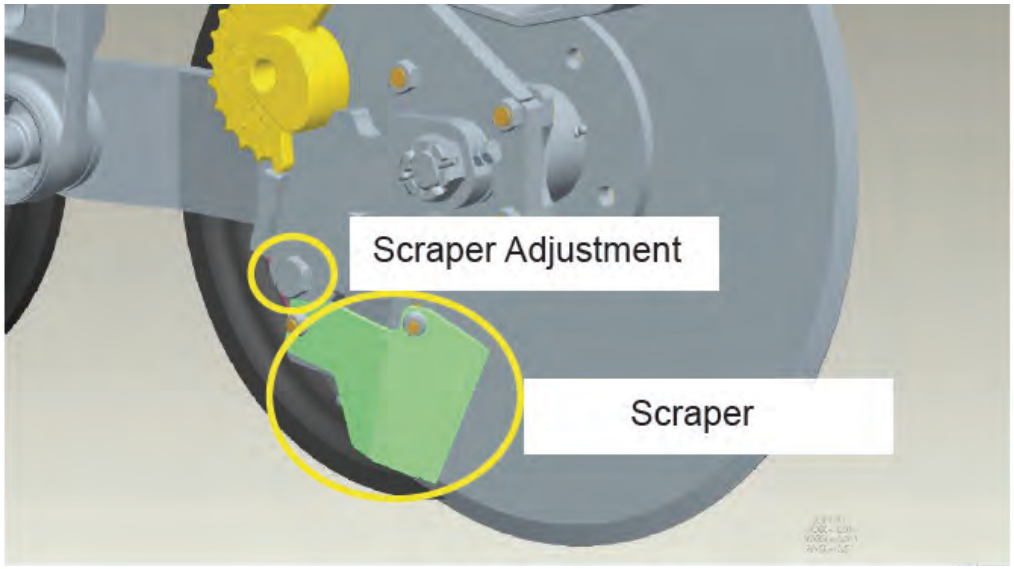
Opener Design

New Disc Scraper

- Improved seed placement and disc cleaning performance.
- Integrated hose holder eliminates the need for hose clamps.

Disc Scraper Settings

- Scraper plate should be aligned with the edge of the bevel on the coulter blade.
- Scraper pressure is set very light from the factory but may be adjusted until the spring is fully compressed for seeding in wet conditions.
- If a solid scraper is more desirable, the spring can be removed and replaced by C18052 spacer bushing (15/16” OD x .627” ID x 15/16” LG) plus a single 5/8” lockwasher to provide a near solid mount that allows only enough movement to account for disccoulter blade flex.



Opener Design

Disc Scrapers

- Forward angled seed tube design and improved air relief reduces seed bounce for more consistent seeding depth accuracy
- New scraper rides fully in the disc blade shadow, preventing secondary shelves from being cut in the furrow, overall reducing draft and penetration forces
- Much smaller surface that contacts the disc blade with an inner carbide to prevent premature wear on the inside face.
- New scraper mount designed for a both single and dual shoot configurations and requires no hose clamps.

Opener Design

Depth Adjustment

- Single cam, pin adjustment using ¼” increments up to 2 ¾” deep

Opener Design

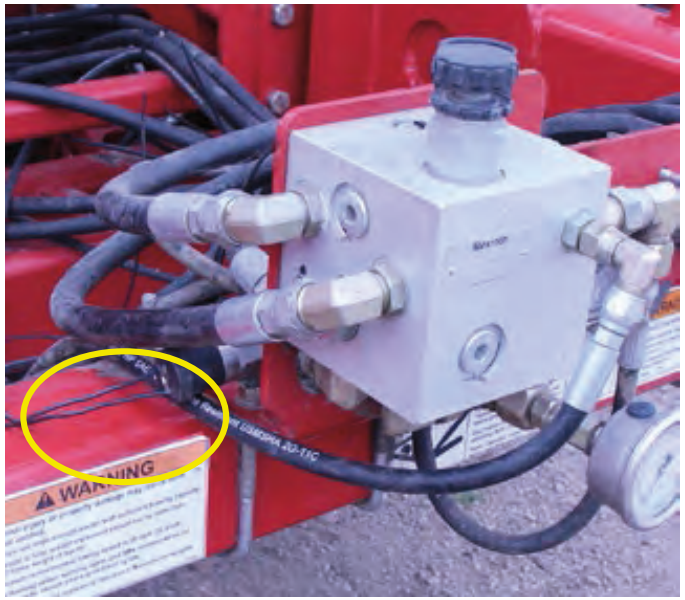
Packing System

- Dual-rib closing wheel closes furrow and firms the soil over the seed
- Wheel can be moved to a 2nd bolt location to change the closing angle. This changes from standard 5º angle to a compound 5º + 5º degree angle
- Wheel is reversible for wear longevity.

Hydraulic System

Work Switch

- A pressure activated work switch is now used on C2 Contour and RAZR drills.
- The work switch controls the air cart metering system by sensing changes in the hydraulic pressure on the openers. When the openers are raised the switch opens at a pre-set pressure turning off the air cart metering and when lowered, the switch closes at the pre-set pressure to turn on the metering.
- The work switch is pre-set at the Factory and will meet most operating conditions but can be adjusted if needed.



Hydraulic System

Requirements

- 20 gallons/min recommended for raising and lowering the openers
- Tractors with lower pump capacities will still lift and lower the openers but cycle times will get longer accordingly
- Openers require on average 4.5hp at 6mph*
- ***Note that hp per opener is affected by speed, depth and soil conditions**

Accumulator Operating Range		
Nitrogen Pre-charge Pressure	Display Pressure	
	Minimum	Maximum
350 psi (2413 kPa)	450 psi (3102 kPa)	1200 psi (8274 kPa)

* Maximum system hydraulic pressure is 1200 psi or 4 times the pre-charge pressure, whichever is the lower number.

Hydraulic System

Packing Force

- The Packing force is approximately 1/3 of the opener down force
- Opener force bias while operating in the ground will be approximately 2/3 on disc,1/3 on packer tire

In-Cab Pressure Display (PSI)	Force at Opener (lbs)
400 (2758 kPa)	350 (158.8 kg)
600 (4137 kPa)	440 (199.6 kg)
800 (5516 kPa)	510 (231.3 kg)
1000 (6895 kPa)	600 (272.2 kg)
1200 (8274 kPa)	690 (313 kg)

Hydraulic System

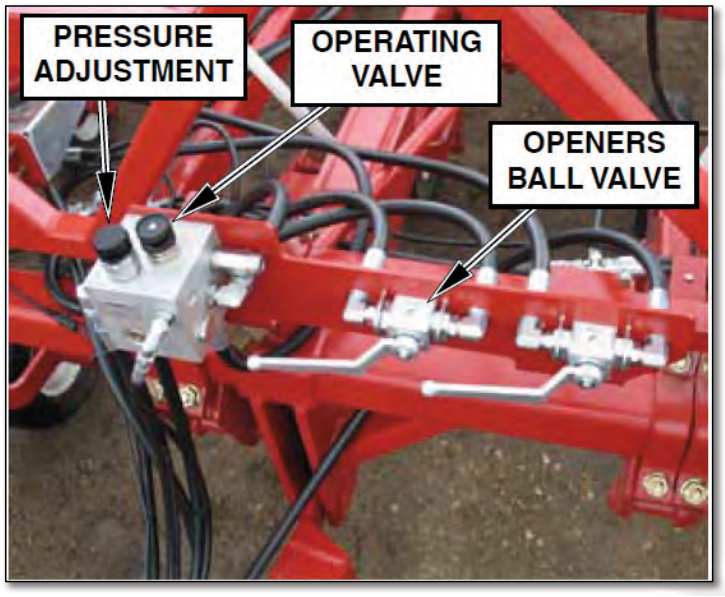
Pressure Control

- Once set, operators can adjust accumulator pressure (down force) from their tractor cab for any changes in soil conditions

Hydraulic System

Valve Block/Bleed Off

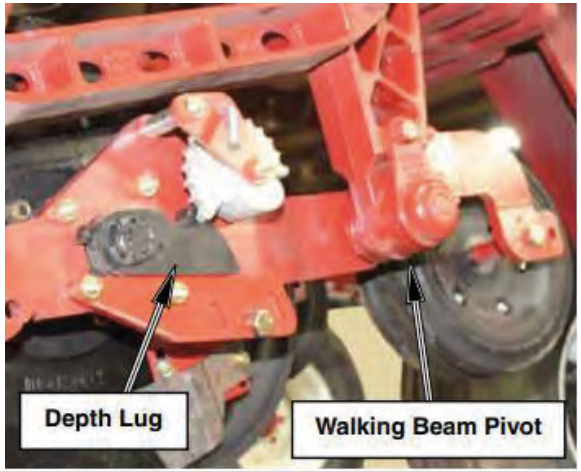
- Easy access at front bar of the drill
- Provides all down pressure and packing force adjustments
- Design reduces lifting and lowering times for disc openers by locking the accumulator pressure (avoids recharging the accumulator with oil when lifting and lowering).
- Easy bleed out system allows for smooth maintenance and relief of pressure with openers in operating position

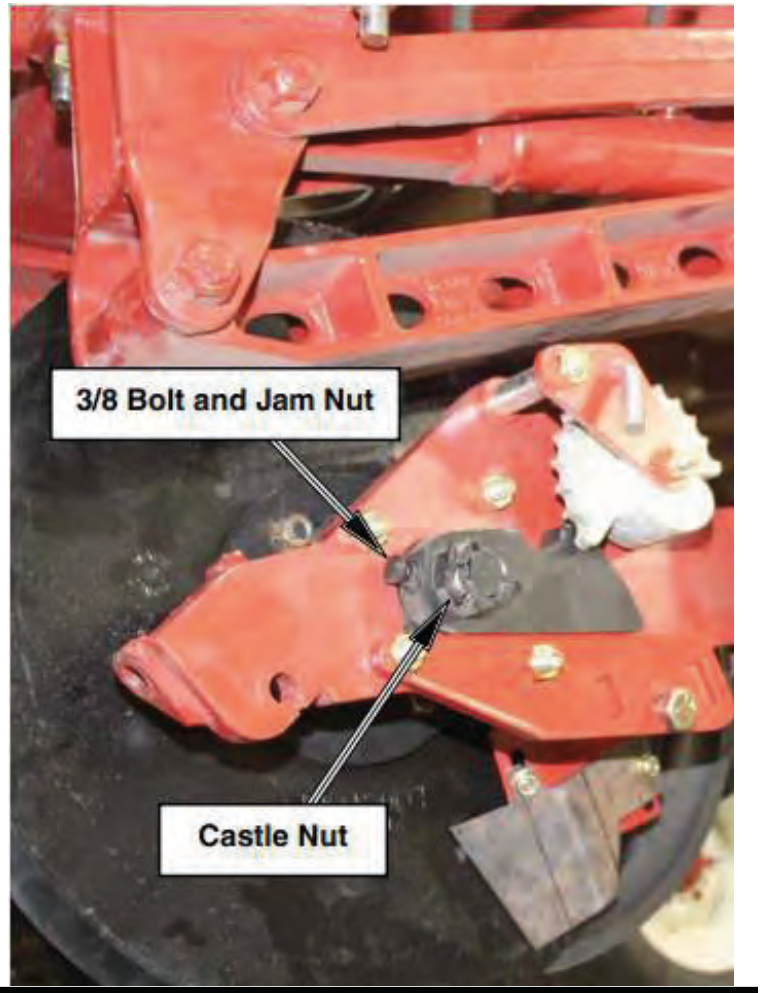


Disc Hub Maintenance

After first 25 hours of machine operation, grease hubs and walking beam pivot until grease escapes through grass wrap guards. Check for any play in disc hub bearings or walking pivots

- Grease walking beam pivot seasonally or every 200 hours afterwards
- Grease disc hubs every 100 hours afterwards unless seeding conditions are extremely wet or extremely dusty; then grease at 25 hour intervals





Disc Hub Maintenance

If play exists in disc blade/disc hub follow the procedure below to correct:

- Loosen the 3/8” bolt and jam nut on depth lug.
- Remove cotter pin from castle nut.
- Torque castle nut down to 35 lb-ft while rotating blade slowly.
- Back off nut to nearest cotter pin alignment position and reinstall cotter pin.
- Tighten depth lug 3/8” locking bolt down to 30 lb-ft and tighten jam nut.

If play exists in walking beam pivot follow the procedure below to correct:

- Remove the 5/8” locking bolt from cast dust cap.
- Remove dust cap and inspect hub bearings and grease.
- Remove cotter pin from castle nut.
- Torque castle nut to 35 lb-ft and then back castle nut off to nearest cotter pin hole.
- Re-install cotter pin and cast dust cap.
- Tighten 5/8” dust cap lock bolt until dust cap is secure.

If play cannot be taken up with above procedures, disassemble hubs for inspection of bearings, seals, cups etc. and repair or replace components as necessary

Important:

In extreme wet, or extreme dry conditions; grease Disc Hubs every 25 hours.

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PRE-SEASON INSPECTION
Air Drills

CUSTOMER	AIR DRILL INFORMATION
Name:	Acres Covered:
Address:	Serial Number:
City and Prov:	Warranty End Date:
Phone:	

Safety (to be done at pickup)	CONDITION		Repair / Replacement Specification	COMMENTS
	OK	Repair / Replace		
Tires			Check for worn, damaged tires	
Check Tire Inflation			See OM	
Wheel Bolt Torque			See OM	
Condition of Hydraulic Hoses			No leaks, fittings tight, hoses worn	
Hose Supports				
Check Operation of Lights				
Transport Lock Valves			In transport position	
Hydraulic Cylinders			Inspect for leaks	
Inspect Hitch pin for wear				
Inspect wing pivot pins/cylinder pins			Check for wear	

Air Distribution	CONDITION		Repair / Replacement Specification	COMMENTS
	OK	Repair / Replace		
Primary Hoses			Check for cracks and proper installation	
Secondary Hoses			Check for cracks and proper installation	
Manifolds			Check to see if plugged or if lids are seized	

Drill	CONDITION		Repair / Replacement Specification	COMMENTS
	OK	Repair / Replace		
Seed Boots			Check condition of wear & for obstructed airways	
Shanks			Check condition	
Packers			Check for wear & damage	
Packer Bearings			Check for smooth operation	
Packer Arm Assembly			Check for excessive play	
Truss Rods			Inspect condition & check that they are tight. If not, retorque to OM specs.	
Transport Lock Valves			Check with partially raised wings, engage lock, then put tractor hydraulics into float position	
Jack-On Hitch			Check for smooth operation	

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PRE-SEASON INSPECTION
AIR CARTS

CUSTOMER	AIR CART INFORMATION
Name:	Acres Covered:
Address:	Serial Number:
City & Prov:	Warranty End Date:
Phone:	

Safety (to be done at pickup)	CONDITION OK	CONDITION Repair / Replace	Repair / Replacement Specification	COMMENTS
Tires			Check for worn, damaged tires	
Check Tire Inflation			See OM	
Wheel Bolt Torque			See OM	
Check Wheel Bearings			Roll smooth / bearing play	
Inspect Condition of Hydraulic Hoses			No leaks, fittings tight, hoses worn	
Hose Supports			Keeping hose suspended	
Check Operation of Lights				
Safety Chain			In place with locking hook	
Parking Stand				
Inspect all Safety Shields			In place	
Hand railings / Steps			Fastened securely	
Check hitch pins for wear			Air Cart to drill pin	
Check all Safety Decals, Reflectors, and SMV Sign			In place	

Meter Drive System	CONDITION OK	CONDITION Repair / Replace	Repair / Replacement Specification	COMMENTS
Left Hand Drive Tire - Gear Alignment of Chain			Verify proper sprocket clearance to drive shaft ~ see OM	
Main Drive Clutch			Voltage - 12+ Also, check condition of ground location and connection. Check gap clearance	
Chain Idler Tension Adjustment + chain / sprocket condition				
Check shaft bearings / collars			Check that lock collars are tight	
Secondary Clutch			Voltage - 12+ Ground Gap clearance	
Product Meter Transmission			Chain alignment	
Product Meter Drive			Shear bolts	
Check that Metering Shaft turns freely			Rolling torque - no more than 50 inch / lbs	
Lubrication of Metering Wheels			Lubricate at storage time	

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PRE-SEASON INSPECTION
AIR CARTS

Metering Body	CONDITION		Repair / Replacement Specification	COMMENTS
	OK	Repair / Replace		
Half - tank shutoff's			Check for free movement	
Check for Proper Metering Wheels			Condition & proper size for dividers	
Meter Body Housing			Check condition of coating	
Double Shoot Collector			Check for free operation of flappers	
Variable Rate Transmissions			***Run for proper rotation & Inspect for oil leaks***	

Air Delivery System	CONDITION		Repair / Replacement Specification	COMMENTS
	OK	Repair / Replace		
Hydraulic Fan Motor			Inspect for leakage & grease bearing	
Hydraulic Fan Operation			Verify operation & connections to tractor	
Double Shoot Plenum			Check for free operation of dampener	
Perform Manifold - Tank Pressure Differential Test				

Conveyor System (if equipped)	CONDITION		Repair / Replacement Specification	COMMENTS
	OK	Repair / Replace		
Conveyer Hydraulic Components & Check Valve			No leaks, fittings are tight, check for worn hoses	
Conveyer Operation			Belting is tracking properly & has proper tension adjustment. Check lacing is in good shape	

Air Cart Electrical System	CONDITION		Repair / Replacement Specification	COMMENTS
	OK	Repair / Replace		
7 Pin Trailer Lighting & Accessory Outlet			Inspect tractor, seeding tool & Air Cart that connections are clean and make proper contact	
Monitor Cable Connections			Inspect connections & wire placement	
Blockage Sensors (if equipped)			Clean prior to each season & verify installation direction of sensor is correct -- See OM	

Product Tank	CONDITION		Repair / Replacement Specification	COMMENTS
	OK	Repair / Replace		
Tank Free of Debris				
Tank Lid Seal			Check for damage to seals	
Tank Lid Adjustment			See OM	
Dead Head at Drill Connection / Run Fan			To check for air leaks	
Tank Level Sensors			Check for free operation & correct placement	

Morris 360 Service™

"I can't afford down-time."

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We hear you.

Surrounding you with 360 support.

When you have an emergency during seeding you need help immediately. That's why we created Morris 360 Service SM. To provide troubleshooting from our Technical Support Specialists during seeding.

Your first "trouble" call should always be to your dealer. But if they are assisting another customer, Morris 360 Service will provide immediate support. Together, we'll ensure your problems are resolved quickly and efficiently.

Morris 360 Service includes:

- April 1 to June 15 service coverage
- Emergency access to problem diagnoses and parts
- All Morris seeding and tillage products
- Service 7am to 11pm everyday
- Your choice of delivery arrangements

MORRIS 360 SERVICE SM

1-877-360-4360
www.morris-industries.com

Note that for the best information regarding each specific product, Morris provides open access to all operator, assembly, FAQ, training modules and parts manuals on the Morris Industries website located in the “Service” section. Always refer to such manuals for extended information on topics found in this booklet.

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