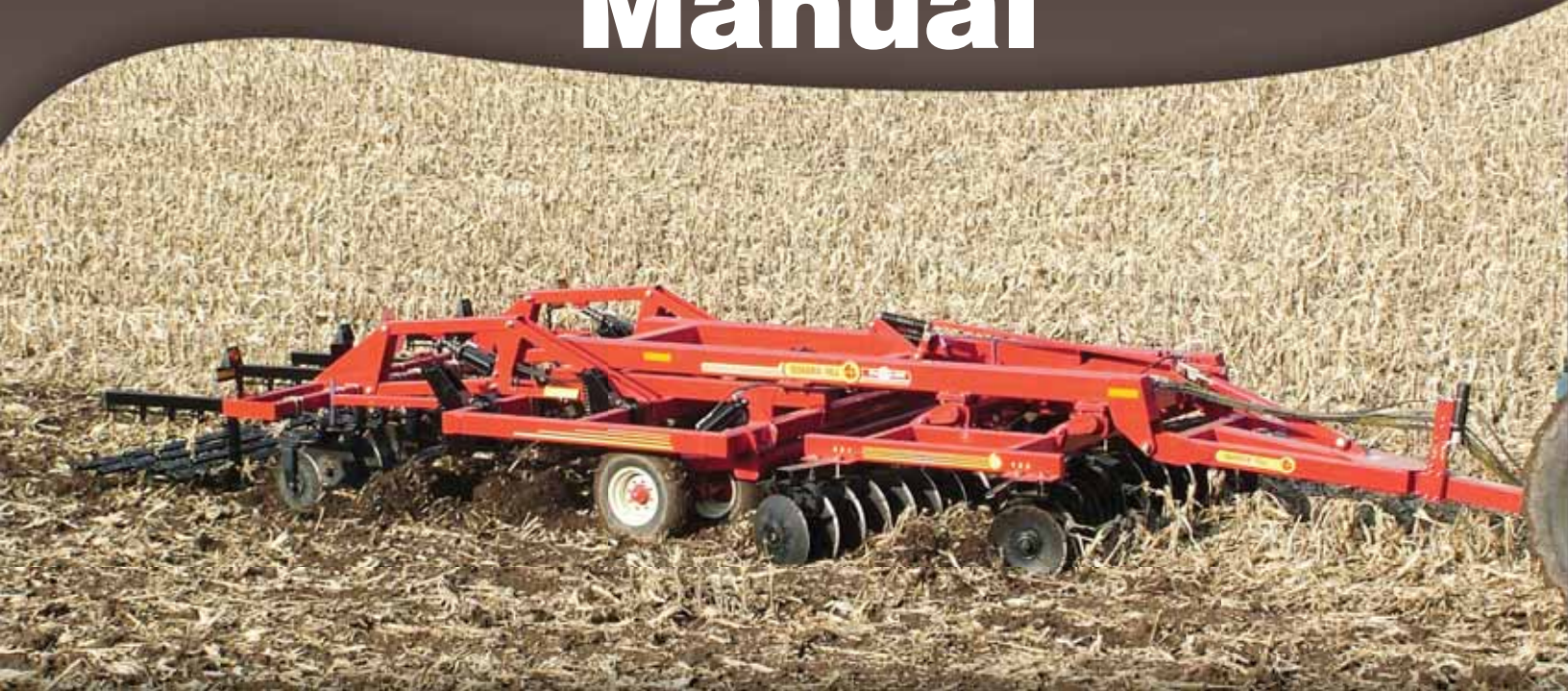


Assembly Manual



McFARLANE

QUADRA-TILL

200 Series

SIZES, SHATTERS, MIXES, & LEVELS



MADE IN THE USA 

Read and understand the manual. This manual provides information and procedures to safely assemble the Quadra-Till.



Version: 13137 — Serial Numbers 20901 and Up

Contents

INTRODUCTION	4
Contact Information	4
SAFETY	4
General	4
Safety Alert Symbols	5
Safety Icons Nomenclature	6
Personal Protection/Important Information	6
Prohibited Actions	6
Hazard Avoidance	6
General Assembly Safety	7
GENERAL INFORMATION	8
Component Locations	8
Shipping Configuration	8
1. Hitch Frame	8
2. Disk Frame with Disk Gangs	8
3. Main Frame	9
4. Chisel Shank Frame with Axle	9
5. Tire and Rim Assemblies with Hub Assemblies	10
6. Chisel Shank Assemblies	10
7. Leveler Disk Assembly	10
8. Harrow Sections	10
9. Hardware Crate	11
10. Gauge Wheel Assembly (QT-215F, QT-217F)	11
11. Rolling Baskets (If Equipped)	11
BOLT TORQUE CHART	12
ASSEMBLY PROCEDURE	13
Tire and Lug Torque Specifications	19
FABRICATED SUPPORT STAND	32
LUBRICATION POINTS	33
LAYOUT DIAGRAMS	34
QT-207 - Shank Frame	34
QT-209 - Shank Frame	35
QT-211 - Shank Frame	36
QT-213 - Shank Frame	37
QT-213F - Shank Frame	38
QT-215F - Shank Frame	39
QT-217F - Shank Frame	40
QT-207 - Rolling Basket	41
QT-209 - Rolling Basket	41
QT-211 - Rolling Basket	42
QT-213F - Rolling Basket	42
QT-215F - Rolling Basket	43
QT-217F - Rolling Basket	43
QT-209-I	44
QT-211-I	44
QT-213F-I	45
QT-215F-I	45
QT-217F-I	46

Introduction

Thank you for purchasing the McFarlane Quadra-Till Primary Vertical Tillage System. We know that you will get many years of dependable service because McFarlane has been manufacturing quality agricultural equipment since 1936.

A single pass in the fall with the Quadra-Till will leave the soil and residue in a condition that requires only a light pass with a reel disk. Using both implements will create the perfect seedbed, saving time, expense, and preparing your fields for spring more quickly.

The Quadra-Till incorporates field residue up to a ten inch depth for quick breakdown and nutrient deposit. It also prepares the soil so spring field preparation and planting can be done quicker and easier. The Quadra-Till also prepares the ground to promote strong root growth for higher yields.

Quadra-Till provides four tillage functions in a single field pass.

1. Size Residue – Cuts residue into small pieces for faster breakdown
2. Shatters Soil – Full width fracture of the soil to eliminate compaction layers
3. Mixes Residue – Spreads residue uniformly throughout the profile, ensuring thorough breakdown of residue.
4. Levels the Seedbed – Eliminating the need for multiple field finishing passes

Contact Information

If you have questions not answered in this manual, require additional copies, or the manual is damaged, please contact your local dealer or:

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Safety

General

Safety of the operator and bystanders is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment.

Most work related accidents are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. As you assemble, operate, tow, or maintain the Quadra-Till (unit), you must be alert to potential hazards. You should also have the necessary training, skills, and tools to perform any assembly procedure.

Improper operation and maintenance of this unit could result in a dangerous situation that could cause injury or death.

WARNING



Do not use or tow the unit until you read and understand the information contained in this manual.



Safety precautions and warnings are provided in this manual and on the unit. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

McFarlane cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the product are, therefore, not all-inclusive. If a method of operation not specifically recommended by us is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the unit will not be damaged or be made unsafe by the methods that you choose.

The information, specifications, and illustrations in this manual are based on the information that was available at the time this material was written and can change at any time.

Also refer to the Quadra-Till Operation and Parts Manual for additional safety instructions.



Safety Alert Symbols



This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

This manual contains DANGERS, SAFETY INSTRUCTIONS, CAUTIONS, IMPORTANT NOTICES, and NOTES which must be followed to prevent the possibility of improper service, damage to the equipment, personal injury, or death. The following key words call the readers attention to potential hazards.

Hazards are identified by the “Safety Alert Symbol” and followed by a signal word such as “DANGER”, “WARNING”, or “CAUTION”.

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.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates that equipment or property damage can result if instructions are not followed.

SAFETY INSTRUCTIONS












Safety instructions (or equivalent) signs indicate specific safety-related instructions or procedures.

Note: Contains additional information important to a procedure.

Safety Icons Nomenclature

This manual and the equipment has numerous safety icons. These safety icons provide important operating instructions which alert you to potential personal injury hazards.

Personal Protection/Important Information

-  Read the manual
-  Eye protection
-  Hand protection
-  Inspect equipment
-  Use proper tools
-  Warning decal alert
-  Head protection
-  Protective shoes
-  Stop engine
-  Remove key
-  Set parking brake
-  Transport lock

Prohibited Actions

-  No children
-  No alcohol
-  No drugs
-  No riders

Hazard Avoidance

-  Block wheels
-  Crush hazard
-  Crushing hazard
-  Falling hazard
-  Safety alert symbol
-  Sharp object hazard
-  Zero pressure
-  High-pressure fluid hazard
-  Lifting device attachment
-  Tipping hazard

General Assembly Safety

WARNING



Read And Understand Manual

To prevent personal injury or even death, be sure you read and understand all of the instructions in this manual and other related OEM equipment manuals! This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and how it works.

This unit was designed for a specific application; DO NOT modify or use this unit for any application other than that for which it was designed.

Units operated improperly or by untrained personnel can be dangerous!



Rolling Over Hazard

When disconnecting the unit or leaving the operator's seat:

1. Stop the tractor or towing vehicle.
2. Shut off the engine and remove the ignition key.
3. Set the brakes.
4. Make sure the wheel cylinder transport locks are attached.
5. Relieve hydraulic fluid pressure.
6. If parking the unit, make sure the jack stand is lowered and the retaining pin is installed.



Injury Hazard

Do not permit children to play on or around the stored unit.

Personal Protection Equipment

When working around or operating this unit, wear appropriate personal protective equipment. This list includes but is not limited to:



- A hard hat
- Protective shoes with slip resistant soles
- Protective goggles, glasses, or face shield
- Heavy gloves and protective clothing






Impaired Operator Hazard

Do not attempt to operate this equipment under the influence of drugs or alcohol. Review the safety instructions with all users annually.

WARNING

High-Pressure Fluids

1.  Check or tighten all connections BEFORE pressurizing system.
2.  Relieve all pressure before removing hoses and/or valves by:
 - a. Stopping the engine.
 - b. Holding the control levers in float or neutral position.
3.  DO NOT use your bare hand to check for potential leaks. Always use a board or cardboard when checking for a leak.

Escaping hydraulic fluid under pressure, even a pinhole size leak, can penetrate body tissue, causing serious injury and possible death. If fluid is injected into your skin, it must be treated immediately by a doctor familiar with this type of injury.



Personal Injury Hazard

Do not use this unit if it is in need of repair. If you believe the condition of this unit could cause damage, injury, or death, you should immediately stop using the unit and fix the problem.



Fall Hazard

Do not use the unit as a platform. Do not stand on top of the unit at any time. Do not ride on the unit or allow others to ride on it.

SAFETY INSTRUCTIONS



Replace any missing or hard-to-read decals. Decal placement and part numbers can be found in the Nomenclature section of the

Operator's manual.

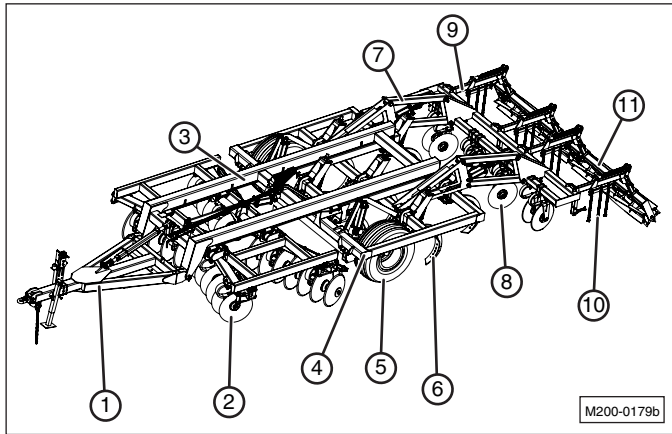


Visually inspect the unit for any loose bolts, worn parts, or cracked welds, and make necessary repairs.

To prevent injury, use a tractor equipped with a Roll Over Protective System (ROPS).

General Information

Component Locations



- (1) Hitch Frame. (2) Disk Gang Frame with Disk Gangs.
- (3) Main Frame. (4) Chisel Shank Frame with Axle.
- (5) Tires and Rims. (6) Chisel Shank Assemblies.
- (7) Leveler Disk Mounting Arms. (8) Leveler Disk Assembly.
- (9) Harrow Lift Arms. (10) Harrow Sections.
- (11) Rolling Baskets (If Equipped).

Shipping Configuration

The unit is shipped in the following configuration.

Item	Description
1	Hitch Frame
2	Disk Gang Frame With Disk Gangs
3	Main Frame
4	Chisel Shank Frame With Axle
5	Tires and Rims
6	Chisel Shank Assemblies
7	Leveler Disk Assembly
8	Harrow Sections
9	Hardware Crate
10	Rolling Baskets (If Equipped)

1. Hitch Frame



Note: The hitch frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207 – QT-211	1632	740
QT-213 – 217F	1743	791

2. Disk Frame with Disk Gangs



Models QT-207, QT-209, QT-211, and QT-213



Model QT-213F Only



Model QT-215F Only

Note: The disk gang assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	3579	1623
QT-209	3945	1789
QT-211	5133	2328
QT-213	5589	2535
QT-213F	5707	2589
QT-215F	6914	3136
QT-217F	7214	3272

3. Main Frame



Note: The main frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207 – QT-211	2282	1035
QT-213	2282	1035
QT-213F	2282	1035
QT-215F & QT-217F	2282	1035

4. Chisel Shank Frame with Axle



Models QT-207 - QT-213F



Models QT-215F & QT-217F

Note: The chisel shank frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	1879	852
QT-209	2101	953
QT-211	2199	997
QT-213	2219	1007
QT-213F	2219	1007
QT-215F	2720	1234
QT-217F	3080	1397

5. Tire and Rim Assemblies with Hub Assemblies



Note: The wheels, tires, and hubs weigh (combined weight of 4):

Model	Weight in Pounds	Weight in Kilograms
QT-207	454	206
QT-209 – QT-211	596	270
QT-213F	620	281
QT-215F	908	412
QT-217F	958	435

6. Chisel Shank Assemblies



Note: Each chisel shank assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207 – QT-217F	200	91

7. Leveler Disk Assembly



Models QT-207, QT-209, QT-211, and QT-213
Series 200 Quadra-Till from McFarlane Mfg.



Model QT-213F, QT-215F and 217F

Note: The leveler disk assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	1041	472
QT-209	1221	554
QT-211	1434	650
QT-213	1606	728
QT-213F	1743	791
QT-215F	1839	834
QT-217F	2045	928

8. Harrow Sections



Note: The harrow assemblies weigh (combined weight):

Model	Weight in Pounds	Weight in Kilograms
QT-207	422	191
QT-209	512	232
QT-211	563	255
QT-213	612	278
QT-213F	657	298
QT-215F	709	322
QT-217F	769	349

9. Hardware Crate



Note: The hardware crate containing the leveler disk arms, hub assemblies, and other hardware weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	1370	621
QT-209	1370	621
QT-211	1484	672
QT-213	1716	778
QT-213F	1716	778
QT-215F	1830	830

11. Rolling Baskets (If Equipped)



Note: The rolling baskets weigh (combined weight):




Model	Weight in Pounds	Weight in Kilograms
QT-207-RB	294	133
QT-209-RB	316	143
QT-211-RB	399	181
QT-213F-RB	471	214
QT-215F-RB	428	194
QT-217F-RB	504	229

10. Gauge Wheel Assembly (QT-215F, QT-217F)



Model	Weight in Pounds	Weight in Kilograms
QT-215F, 217F	163	74

Bolt Torque Chart

Bolt Head Markings	 No Marking		 3 Radial Lines		 6 Radial Lines	
	SAE Grade 2 ft-lbs (N·m)		SAE Grade 5 ft-lbs (N·m)		SAE Grade 8 ft-lbs (N·m)	
1/4"	6	(8)	9	(12)	12	(17)
5/16"	10	(13)	19	(25)	27	(36)
3/8"	20	(27)	33	(45)	45	(63)
7/16"	30	(41)	53	(72)	75	(100)
1/2"	45	(61)	80	(110)	115	(155)
9/16"	70	(95)	115	(155)	165	(220)
5/8"	95	(128)	160	(215)	220	(305)
3/4"	165	(225)	290	(390)	400	(540)
7/8"	170	(230)	420	(570)	650	(880)
1"	225	(345)	630	(850)	970	(1320)

Assembly Procedure

Note: Some photos in this section may look slightly different than the product being assembled.

1. Follow all safety instructions in this and/or other related manuals.
2. Make sure all the required parts have been received.

WARNING



Lifting Hazard
Before lifting any component, make sure the lifting capacity of the overhead lifting device

exceeds the weight of the component being lifted. An inadequate lifting capacity can cause the load to fall, resulting in component damage, personal injury, and possibly death.



Crush Hazard
Do not stand beside or under any components suspended from an overhead lifting device. Personal injury and

possibly death can occur from being crushed by a heavy component.

3. Using a suitable lifting device, place the axle frame assembly on flat, level ground.

Note: The axle frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	431	195
QT-209, 211	580	263
QT-213F	622	282
QT-215F, 217F	704	319



4. Slide the axle mounting tube assembly onto the axle frame, as shown. Install one mounting tube on each end of the axle frame.

Note: The axle tube assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207 - QT-217F	34	15



5. Using an overhead lifting device, position the chisel shank frame over the axle frame.

Note: The chisel shank frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	1879	852
QT-209	2101	953
QT-211	2199	997
QT-213	2219	1007
QT-213F	2219	1007
QT-215F, 217F	2720	1234



- Install twenty-four 5/8-11 x 2 inch long Grade 5 bolts and locknuts through the four mounting pads. Tighten the bolts to 160 ft-lbs (215 N·m).



- Place marks on the chisel shank frame to indicate the correct position of the chisel shanks before installing the frame. Refer to the Chisel Shank Location Diagram in this manual for exact placement.



- Remove the shipping pin, indicated by the arrow, and assemble the axle arm truss assembly using a 1-8 x 3-1/4 inch long Grade 8 bolt and lock nut. Tighten the bolt to 630 ft-lbs (850 N·m). Repeat the process for the other side.



Note: The shipping pin can be used for attaching the cylinder to the truss frame assembly, although separate cylinder pins are attached to each cylinder.

⚠ WARNING

Cutting Hazard
 The disk blades are sharp and will cause serious injury. Prevent movement of the disk gang during assembly using wooden blocks or another suitable restraining method. Stand clear of the disk gang assembly whenever assembling components.

- Position the disk gang frame on flat, level ground. Make sure there is enough space (area) to completely assemble the entire Quadra-Till unit. On models with folding disk gangs, the wing should remain folded into the frame, as shown.



Models QT-207, QT-209, QT-211, and QT-213



Model QT-213F



Model QT-215F

Note: The disk gang frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	3579	1623
QT-209	3945	1789
QT-211	5133	2328
QT-213	5589	2535
QT-213F	5707	2589
QT-215F, 217F	6914	3136

10. Place wooden blocks on both sides, front and back, of the disks to prevent accidental movement, as shown.



11. Lift the chisel shank frame and axle assembly and place them on four stands or supports, as shown.

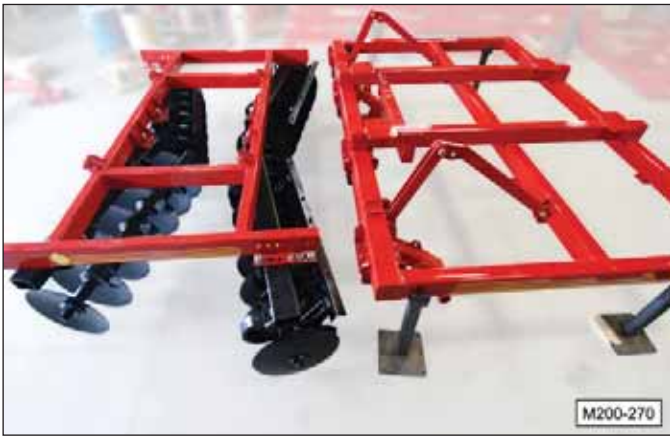
Note: The chisel shank frame and axle assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	2374	1077
QT-209	2596	1178
QT-211	2694	1222
QT-213, 213F	2714	1231
QT-215F, 217F	2720	1234

Note: Attaching the chisel shank frame to the main frame requires sixteen bolts, lock washers, and nuts.



Model QT-213F shown.



Note: A drawing of a fabricated stand can be found in the Fabricated Support Stand section of this manual.



12. Attach the wheel lift cylinder to the axle arm truss assembly and the chisel shank frame using two 1 x 3 inch clevis pins. Secure each clevis pin using two cotter pins. Bend the ends of the cotter pins to secure them in place.



13. Attach a sling or other suitable lifting device to the main frame. Position the sling, forward, 11" (28 cm) from the center tube of the frame, as shown.

Note: The main frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207 – QT-217F	2282	1035



⚠ WARNING

Crush Hazard
 Do not work under suspended components. The weight of these components could cause serious crushing injury or death if trapped underneath.

14. Lift the main frame assembly and position it over the disk gang and chisel shank frames.

Note: The main frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207 – QT-217F	2282	1035



15. Align the four disk hitch pivot points. Lubricate and insert the four mounting pins. Do not force these pins into the holes; adjust the frame members to align the holes until the pins slip into the hole.

Note: Attaching the main frame to the disk frame requires four mounting pins, four bolts, and four lock nuts.



16. Install a 3/8-16 x 2-1/4 inch long Grade 5 bolt with a lock nut into each pivot pin.

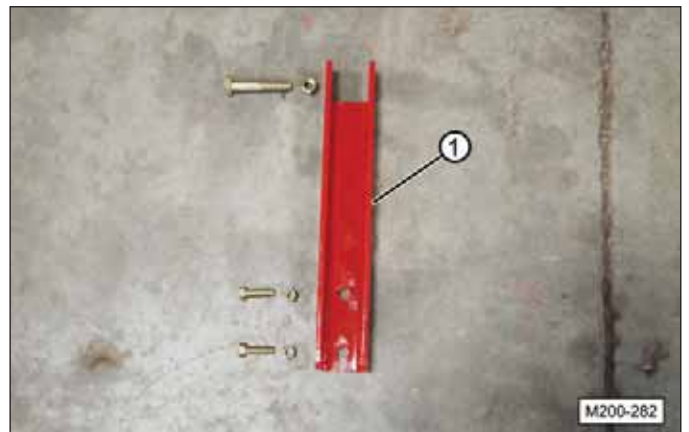


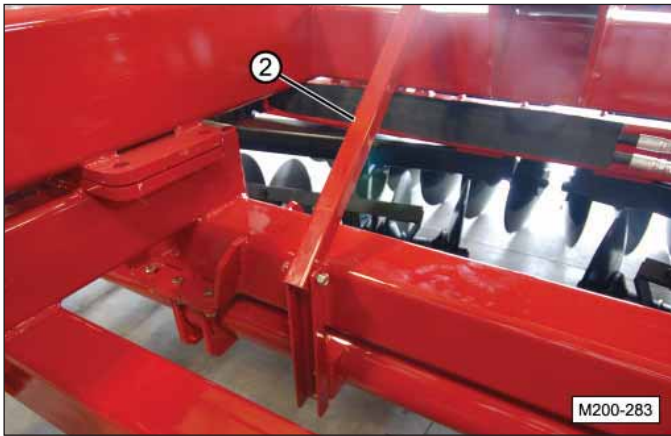
17. Align the four mounting pads on the main frame and chisel shank frame. Install sixteen 7/8-9 x 3 inch long Grade 5 bolts with lock washers and nuts. Tighten the bolt to 420 ft-lbs (570 N·m).



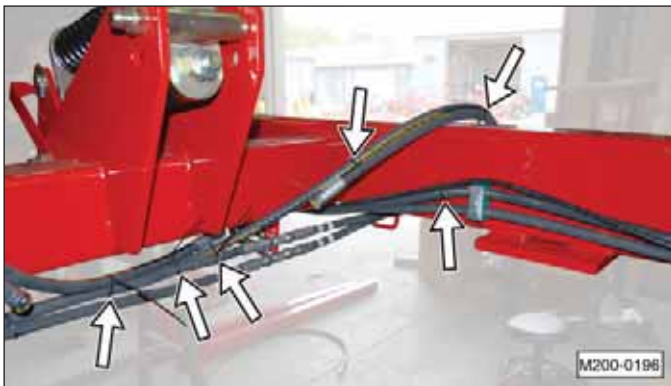
18. Attach hydraulic stop axle bracket (1) to the axle frame using two 3/8-16 x 1 inch long Grade 5 bolts and lock nuts.

Attach hydraulic stop tube (2) to the bracket using a 5/8 x 2-3/4 inch long Grade 5 bolt and lock nut. Do not overtighten the bolt; the stop tube must be able to pivot within the bracket.





19. Remove the plastic cable ties securing the hydraulic hoses and wiring harness to the main frame.

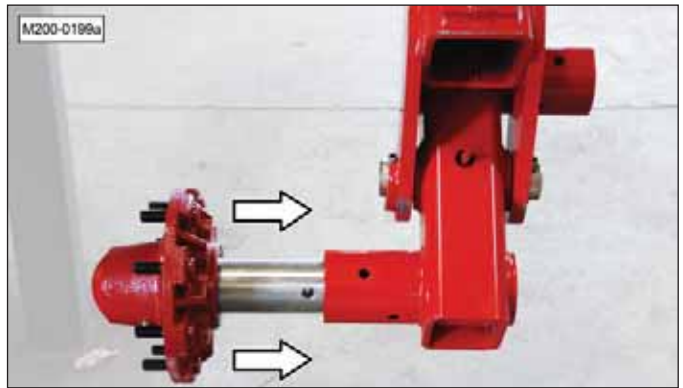


20. Raise the axle assembly and install the two outer hub assemblies into the rock shaft pivot arm. There are two sets of holes in the spindle tube. Use the innermost hole for the QT-209 and QT-211. Use the outermost hole for all other models. **Do not install the inner hubs at this time.**

⚠ WARNING



Crush Hazard
Do not work under the frame. The weight of the frame could cause serious crushing injury or death if trapped underneath.



Note: The hub assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	57	26
QT-209 – QT-213F	47	24
QT-215F, QT-217F	57	26

21. Install the 1/2 x 4-1/2" Grade 5 bolt and lock nut on both outer hub and spindle assemblies. Tighten the lock nuts completely. There are two sets of holes in the spindle tube. Use the innermost hole for the QT-209 and QT-211. Use the outermost hole for all other models.



Note: Make sure the tire is inflated to the specified inflation pressure:

Tire and Lug Torque Specifications

Tire Size	Ply Rating	Tire Pressure	Lug Size	Lug Tightening Torque (lb.ft.)	
				Max.	Min.
QT-207					
16.5L-16.1	14-ply	48 psi	5/8	85	100
QT-209					
IF 320/70R15	—	38 psi	9/16	80	90
QT-211					
IF 320/70R15	—	52 psi	5/8	85	100
QT-213 and QT-213F					
14L-16.1	14-ply	52 psi	5/8	85	100
QT-215F					
16.5L-16.1	14-ply	64 psi	5/8	85	100
QT-217F					
16.5L-16.1	20-ply	64 psi	5/8	85	100



22. Mount the rim and tire assembly to the hub using eight lug nuts for each wheel. Make sure the valve stem is facing outward away from the rock shaft pivot arm. Mount both outside wheels. Tighten the lug nuts to the specified torque.



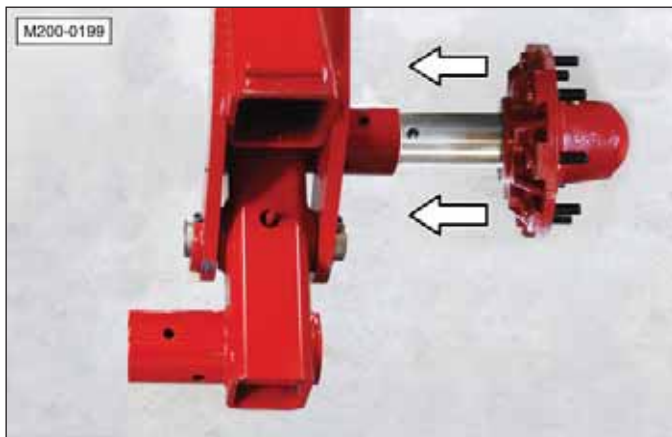
Note: The wheel and tire assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	170	77
QT-209	102	46
QT-211	115	52
QT-213, 213F	124	56
QT-215F	170	77
QT-217F	227	103

23. If not using support stands, remove the transport locks from the leveler disk mounting arms and install them onto both wheel cylinders.



24. Install the remaining inner two spindle assemblies into the rock shaft pivot arm. There are two sets of holes in the spindle tube. Use the innermost hole for the QT-209 and QT-211 and the outermost hole for all other models. Install the 1/2 x 4-1/2" Grade 5 bolt and lock nut on both inner hub and spindle assemblies. Tighten the lock nuts completely.



Note: The hub assembly weighs:


Model	Weight in Pounds	Weight in Kilograms
QT-207	57	26
QT-209 – QT-213F	47	24
QT-215F, QT-217F	57	26

25. Install the remaining two inner hubs and tires.



26. Install the hitch frame assembly.

CAUTION

 Do not remove the lifting device until the hitch frame is attached and the jack stand is installed. Personal injury can occur from being crushed by a heavy component.

Note: The hitch frame assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207 – QT-211	1632	740
QT-213 – 215F	1743	791

Note: Attaching the hitch frame to the main frame requires three mounting pins, bolts, and lock nuts.

- Secure the hitch frame to the lifting device.
- Position the frame assembly and install the lower two retaining pins.



- Raise the turn buckle and install the retaining pin.



- d. Install 1/2 x 2-3/4" Grade 8 bolt (1) and lock nut in the turnbuckle retaining pin. Install 9/16 x 3-1/2" Grade 8 bolts (2) and lock nuts in the frame retaining pins. Tighten all three lock nuts completely.



- 27. Remove the jack stand from its storage position (inside the frame) and install it, as shown.



Note: A temporary block can be used to support the hitch until the assembly is complete.

- 28. Install the chisel shank assemblies in the proper locations (quantities vary according to size of unit). Refer to the Chisel Shank Location Diagram in this manual for exact placement.

Note: The chisel shank assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207 – QT-217F	200	91

Note: Attaching the chisel shank assembly requires one mounting plate, four bolts, and lock nuts.

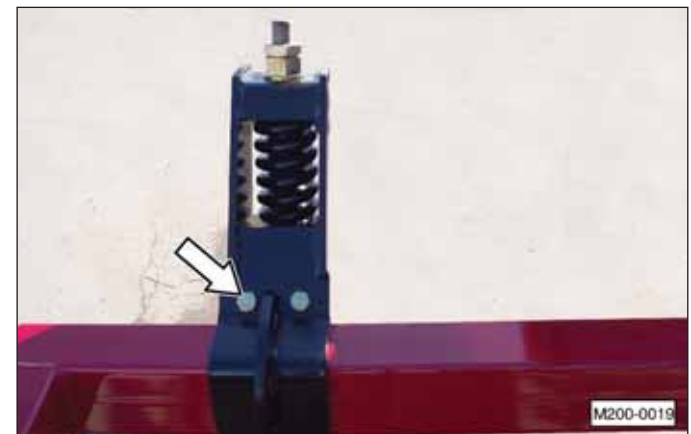
- a. Securely attach a lifting device to the chisel shank assembly.

⚠ CAUTION

⚠ Do not remove the lifting device until the assembly is securely attached to the frame. Personal injury can occur from being crushed by a heavy component.

Align the chisel shank assembly with the mark previously placed on the frame. **The chisel shank assemblies are right and left-handed and must be installed properly.** Left-hand shanks have shovels that twist towards the left side of the unit while right-hand shanks twist to the right. Refer to the layout diagrams in this manual for exact placement.

- b. Install the mounting plate with four 3/4 x 2-1/2" Grade 8 bolts, and lock nuts. Tighten the nuts completely.



- c. Once the assembly is attached to the frame, remove the lifting device.

- 29. Install the leveler disk mounting arms.

Note: The leveler disk mounting arm weighs 300 lbs. (136Kg.)

Note: Attaching the leveler disk mounting arms requires eight bolts, lock washers, and nuts. When installing the arms, the transport lock and stop collars should be positioned towards the outside of the unit.



- a. Securely attach a lifting device to the leveler disk mounting arms.

CAUTION

 Do not remove the lifting device until the assembly is securely attached to the frame.



- b. Align the bolt holes in the leveler disk mounting arms with the mounting plates on the frame. **The mounting arms are right and left-handed and must be installed properly.**


- c. Install the eight 5/8 x 8-1/2" bolts, lock washers, and nuts. Tighten the nuts completely.



- d. Once the assembly is attached to the frame, remove the lifting device.

- 30. Attach the leveler disk frame to the lower leveler disk mounting arms with 1-1/4 x 8 inch long Grade 8 bolts and lock nuts. Tighten the lock nut to hold the leveling disk firmly, but still allow pivoting movement.

WARNING

 Cutting Hazard
Use care when positioning the leveler disk assembly. The disk blades are sharp and could cause serious injury. Stand clear of the leveler disk assembly.

Note: The leveler disk assembly weighs:

Model	Weight in Pounds	Weight in Kilograms
QT-207	1041	472
QT-209	1221	554
QT-211	1434	650
QT-213	1606	728
QT-213F	1743	791
QT-215F	1839	834
QT-217F	2045	928

Note: Attaching the leveler disk assembly requires four bolts and lock nuts.



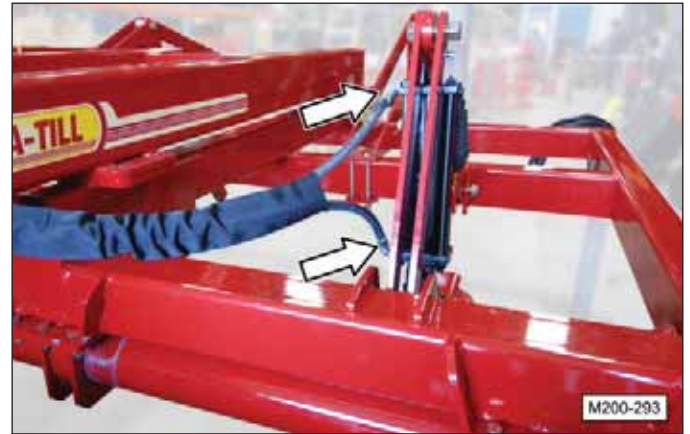
The bolt heads must be seated in the anti-rotation brackets when assembled correctly.

Note: Do not attach the upper arms until after the two cylinders have been actuated and they are sequenced together.

⚠ CAUTION

Connecting hose ends to the wrong cylinder port will result in incorrect operation of the circuit and may cause damage to the machine or personal injury.

31. Attach and completely tighten the hydraulic hoses to the two transport cylinders and the two leveler disk cylinders.



Note: Refer to the hydraulic assembly drawings in the Parts Drawings section of the Operation and Parts Manual when connecting hydraulic hoses to the cylinders. Make sure the hoses are connected to the correct cylinder port.

32. For models with disk gang and leveler disk wings, connect the hoses to the cylinders, as shown.



Model QT-213F with Leveling Disk Wing Cylinder Hoses



Model QT-213F with Disk Gang Wing Cylinder Hoses



Model QT-215F with Leveling Disk Wing Cylinder Hoses



Model QT-215F with Disk Gang Wing Cylinder Hoses

33. Route and connect the hydraulic hoses.

- a. Connect the hose with hydraulic fitting (A) on the main frame to the shut off valve on the hitch frame.



- b. Install and route hoses with colored handles through the retaining bracket on the hitch frame, as shown. Also, route wiring cable harness through “Main Lift” opening in the bracket.



Models QT-207, QT-209, QT-211, and QT-213



Model QT-213F, QT-215F, and QT-217F

- 34. Connect the hydraulic hoses to a suitable tractor.



Note: The most commonly used function of the unit is the “main lift” cylinders, which raise and lower the transport wheels. Connect the hydraulic hoses for this function into the port used most commonly to operate hydraulic functions of tillage equipment.

- 35. Remove trapped air from the hoses and cylinders.
 - a. Extend the leveler disk cylinders completely and hold for 30 seconds. This procedure will sequence the cylinders so they both raise and lower at the same time. Repeat this process at least twice or until the cylinders extend simultaneously.



- b. Remove the transport locks from the sheel cylinders. Raise and lower the transport wheel cylinders three times.
- c. Raise and lower the disk gang cylinder three times.
- d. On QT-213F models, extend and retract the disk gang wings three times.
- e. On QT-213F models, raise and lower the leveler disk wings three times.
- f. On QT-215F and QT-217F models, extend and retract the disk gang wings, chisel shank, and leveler frame three times.

- 36. Close the hydraulic circuit shut off valve to prevent movement of the transport cylinders.



37. Attach the upper leveler disk mounting arms with 1-1/4 x 8 inch long Grade 8 bolts and lock nuts. Tighten the lock nut to hold the leveling disk firmly, but still allow pivoting movement.

⚠ WARNING



Cutting Hazard

The disk blades are sharp and will cause serious injury. Use care when positioning the leveler disk. Stand clear of the disk gang assembly whenever assembling components.



38. Once installed, remove the two shipping stands.



39. Attach the harrows.

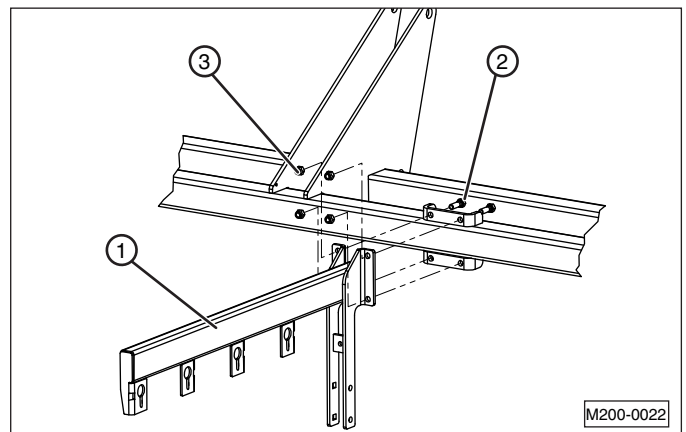
Note: The harrow assemblies weigh:

Model	Weight in Pounds	Weight in Kilograms
QT-207	256 each	116 each
QT-209	275 each	125 each
QT-211	230 or 256 each	104 or 116 each
QT-213	256 each	116 each
QT-213F	211 or 230 each	96 or 104 each
QT-215F	148 or 288 each	67 or 131
QT-217F	178 or 288 each	131 or 116 each

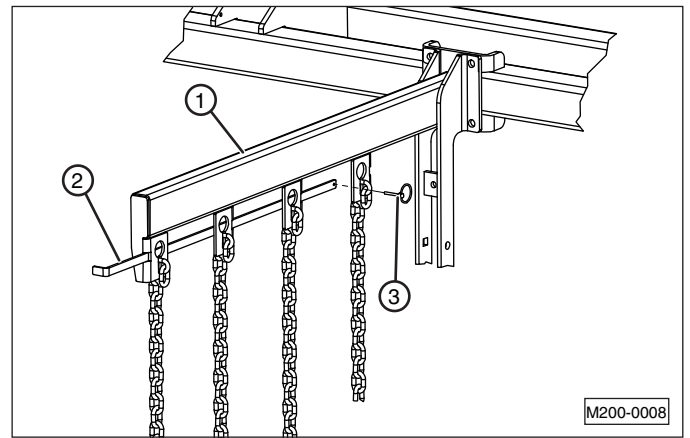


- a. Bolt harrow lift arms (1) to the leveler disk frame with 5/8 x 2" bolts (2) and locknuts (3). Tighten the nuts completely.

NOTE: The harrow lift arms supplied with units equipped with rolling baskets will have additional components to support the rolling baskets. The attachment procedure is the same.

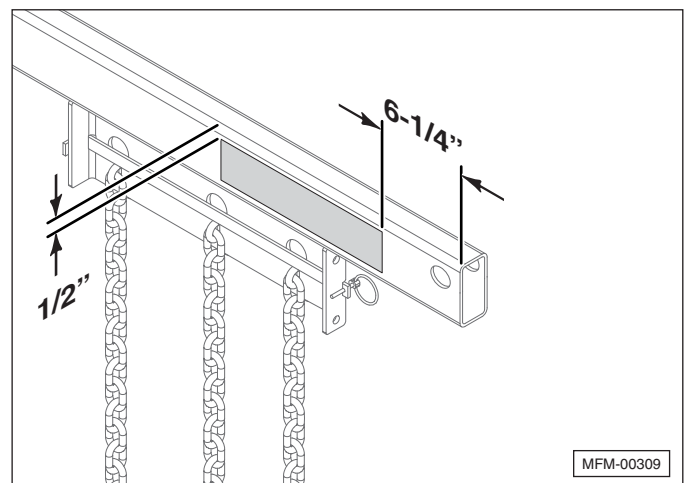
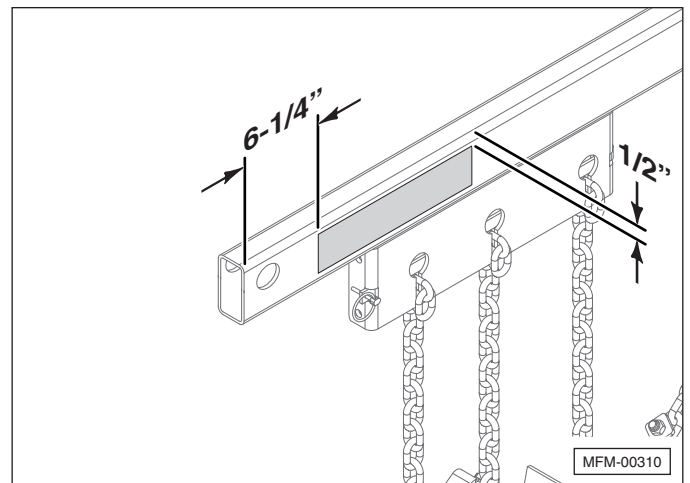


- b. Attach the four pivot brackets to the pull arms using a 5/8 x 4" carriage bolt and lock nut. Do not overtighten the locknut. The pivot bracket must move freely.



40. Install the amber decals on the outside surface of both main frame outer lift arms. The decals are located 6-1/4 inches forward of the rear end of the lift arms and 1/2 inch below the top of the tube.

- c. Attach the ends of the short and long chains to the harrow using a 1/2 x 1-3/4" bolt, square washer, and lock nut. Attach the top end of the long chains to lift arms (1) using lift chain lock bar (2). The lock bar allows the harrow to be located in any desired height. Finally, install retainer clip (3).



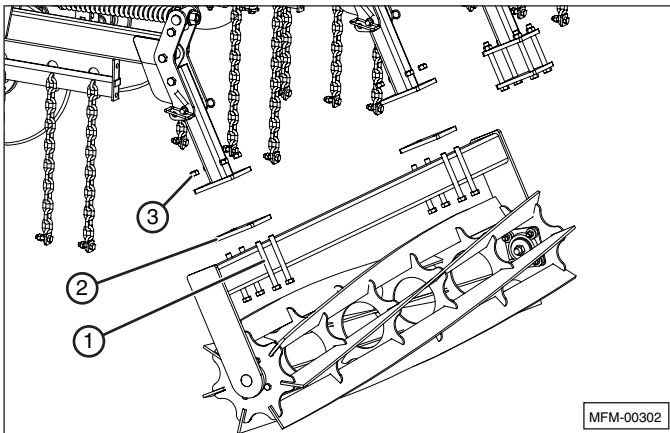
41. Attach the rolling baskets (if equipped).

NOTE: Steps 41 and 42 apply only to models QT-207-RB, QT-209-RB, QT-211-RB, QT-213F-RB, QT-215F-RB, and QT-217F-RB. For all other models, proceed to step 43.

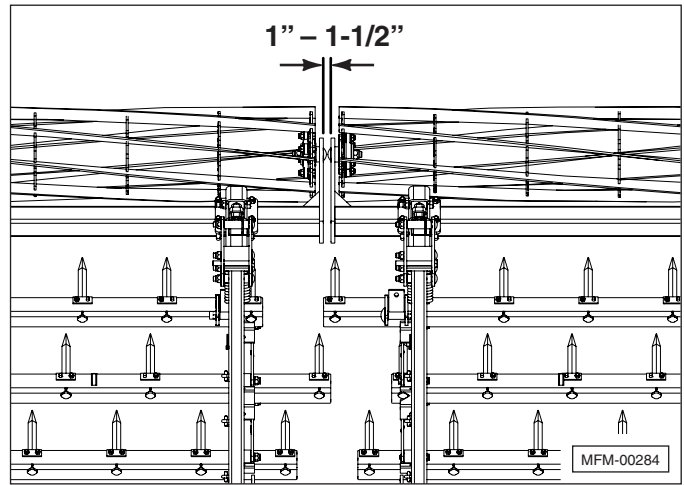
a. Remove the rolling baskets from their shipping pallets.



b. Bolt the rolling baskets to the lift arms using 5/8-11 x 6" bolts (1), clamp plates (2), and 5/8" locknuts (3). Use the layout diagrams in this manual to properly configure the attachment of the rolling baskets to the lift arms.



c. Maintain a 1" to 1-1/2" space between adjacent rolling basket assembly end plates.



42. Attach the hitch weights.

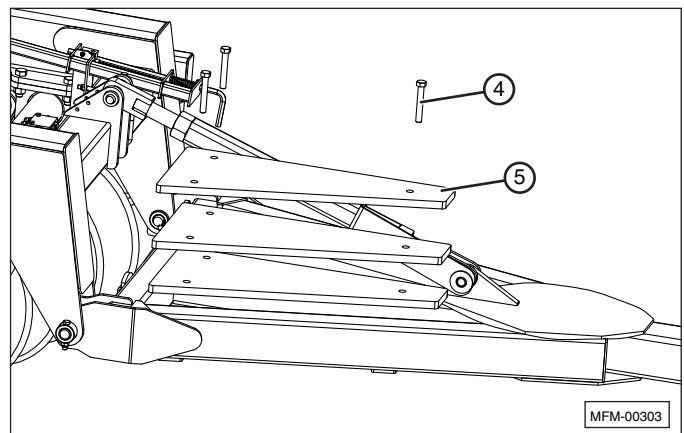
WARNING



Crush Hazard

The hitch weights weigh 108 lbs. each. Personal injury and possibly death can occur from being crushed by a heavy component. Do not stand beside or under any components suspended from an overhead lifting device.

d. Using a suitable lifting device, place weights (4) on the weight brackets and secure with six 3/4-10 x 5" hex bolts (5) and lock nuts.



43. Assemble and attach the Slow Moving Vehicle (SMV) sign to the leveler disk. The sign should be placed on the left side of the unit, between the two outer lift arms.

Note: Attaching the SMV sign requires a 1/2 x 4 x 5" U-bolt, lock washers, and nuts.

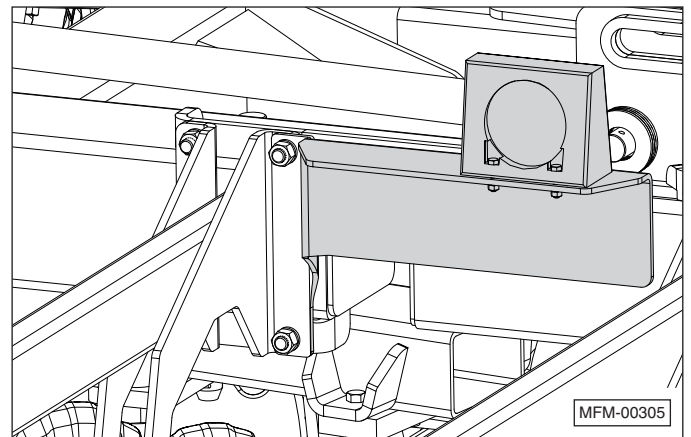


44. Assemble and attach the two outer amber lights to the leveler disk frame with a 1/2-13 x 4-1/2 U-bolt, lock washers, and hex nuts. Then, attach the inner red lights, as shown. Tighten the nuts completely.

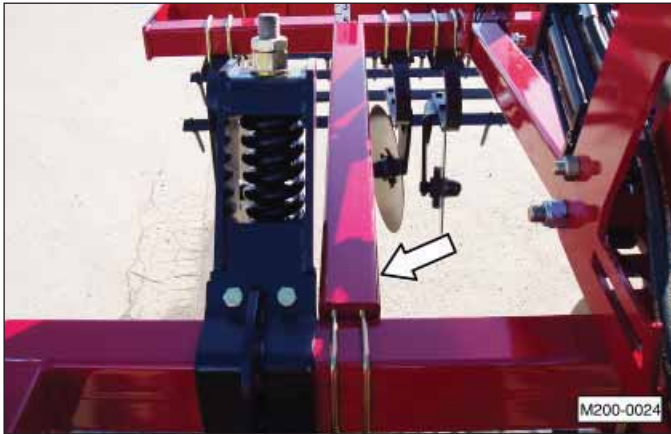


Note: The Red Lights must be positioned at least 2', but not more than 5' from the centerline of the unit.

45. For the 215F and 217F only, assemble and attach the two outer Amber Lights to the main frame using the 5/8-11 x 2" bolts, lock washers, and nuts that attach the outer Lift Arms.

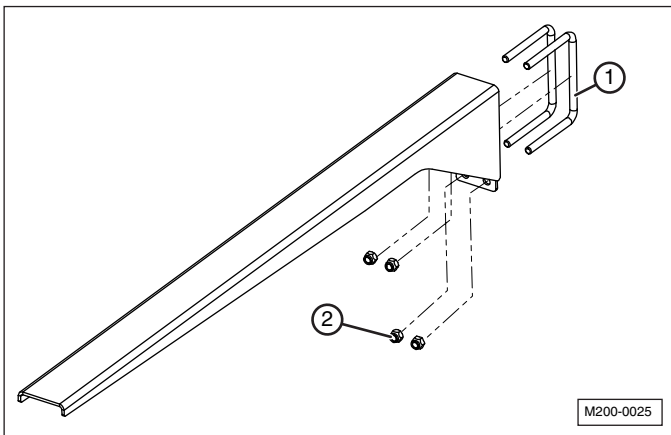


46. Attach the depth adjustment indicator gauge and the indicator arm.



Note: Attaching the depth adjustment indicator arm requires two U-bolts and four locknuts.

a. Attach the depth adjustment indicator arm to the chisel shank frame with two 1/2-13 x 6 x 5" U-bolts (1) and four locknuts (2). Tighten the nuts completely.

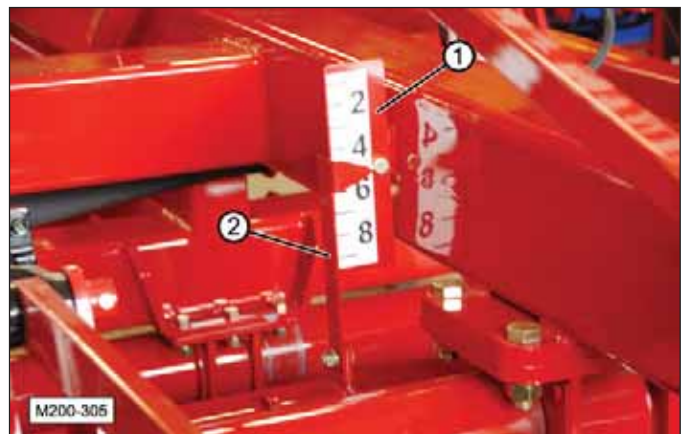


b. Align and attach the depth adjustment indicator gauge to the leveler disk with a 1/2 x 4 x 5" U-bolt, lock washer, and nuts. Tighten the nuts completely.



47. Attach the front disk depth gauge (1) to the main frame. Use a 3/8-16 x 1 inch long Grade 5 bolt and lock nut. Tighten the nut completely.

48. Attach disk depth indicator (2) to the disk gang frame using a 1/2 x 1-1/4" bolt, lock washer, and nut. Tighten the nut completely.



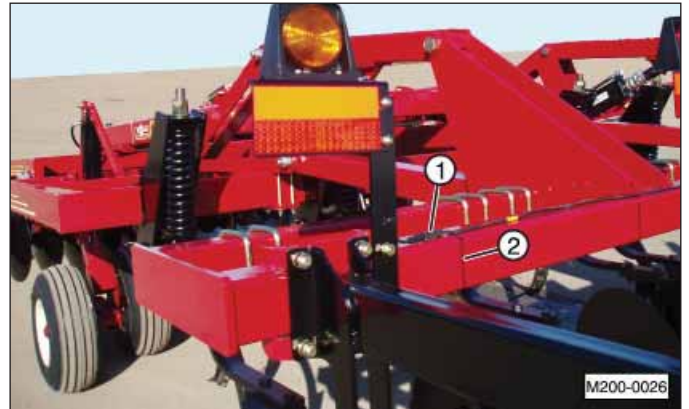
49. Remove the plastic cable tie and extend the wiring harness wire back to the leveler disk frame.



50. Plug one end of the wishbone wiring harness into the main wiring harness. Plug the other ends into each light assembly.



51. Plug wiring harness (1) into each of the four taillights. Secure the wiring harness to the frame using plastic cable ties (2).



52. Install gauge wheel assemblies (215F and 217F only).



NOTICE

Wheel bearings and leveler disk bearings do not require lubrication during the initial assembly of the unit. These bearings should be greased sparingly every 50 hours of service. Check for end play in the bearings, prior to adding grease.

53. Add grease to the locations shown in the illustration on the following page. Refer to the Operator's Manual for additional information on periodically greasing the unit.

When greasing a pin and bushing, add grease until it is visibly forced out of the joint.

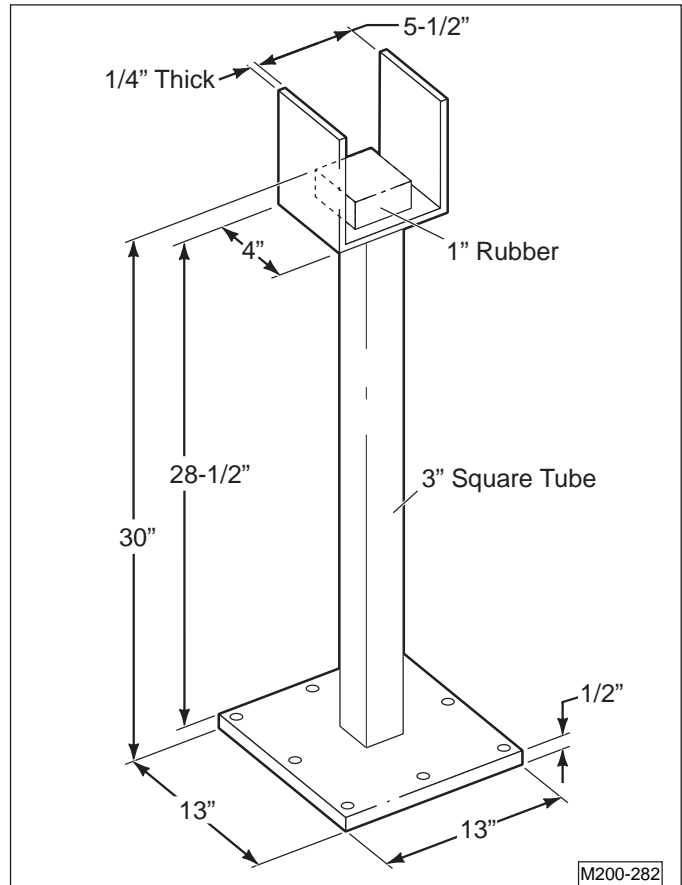
Clean, repack, and adjust the wheel bearings and leveler disk bearings annually. Use only wheel bearing grease when repacking these units.

54. Refer to the Operator's manual for an initial setup procedure.

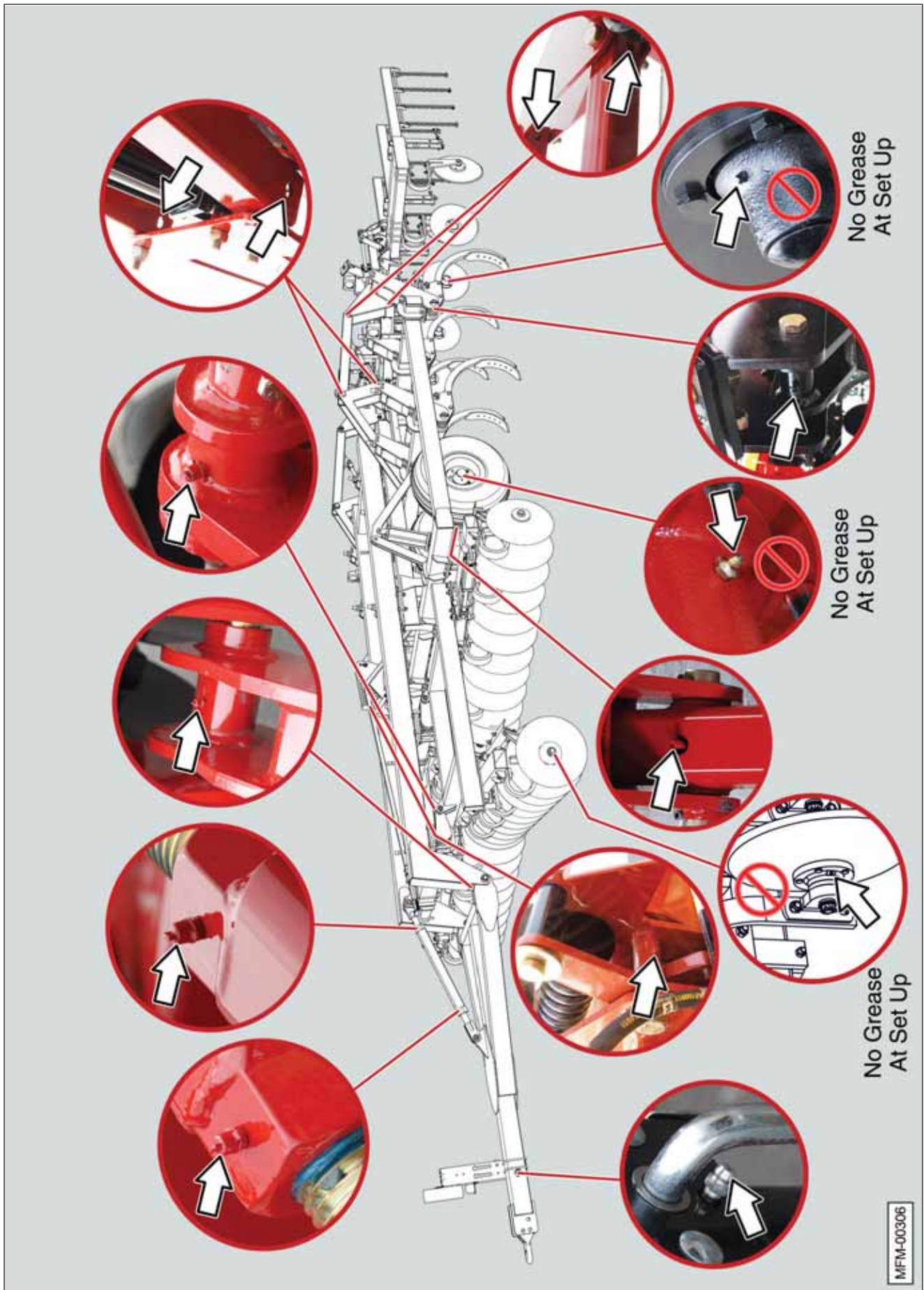
Fabricated Support Stand

The following diagram is for fabricating support stands which will aid in the assembly of the unit. It is the responsibility of the installer to make the stands strong enough to support the weight of the assembled components.

- Install the mounting bracket. The distance between the square tubing on the frame and the center line of the wheel is 8" (203 mm), as shown in the QT-215F Shank Frame diagram in this manual.
- Install the vertical leg into the mounting bracket. Install the pin, washer, and lock pin to retain the vertical leg. The height of the vertical leg will be adjusted during the setup procedure which is found in the Operator's manual.
- Install the ratchet device using the retainer pins and click pins. During operation, the ratchet should be adjusted to eliminate any end play of the vertical leg.
- Install the hub assembly with a 1/2 x 4-1/2" Grade 5 bolt and lock nut. Tighten the lock nut completely.
- Install the wheel and tighten the wheel bolts to 85 to 100 ft.lbs. (115 to 135 N·m). Make sure the tires are inflated to 48 psi (330 kPa).



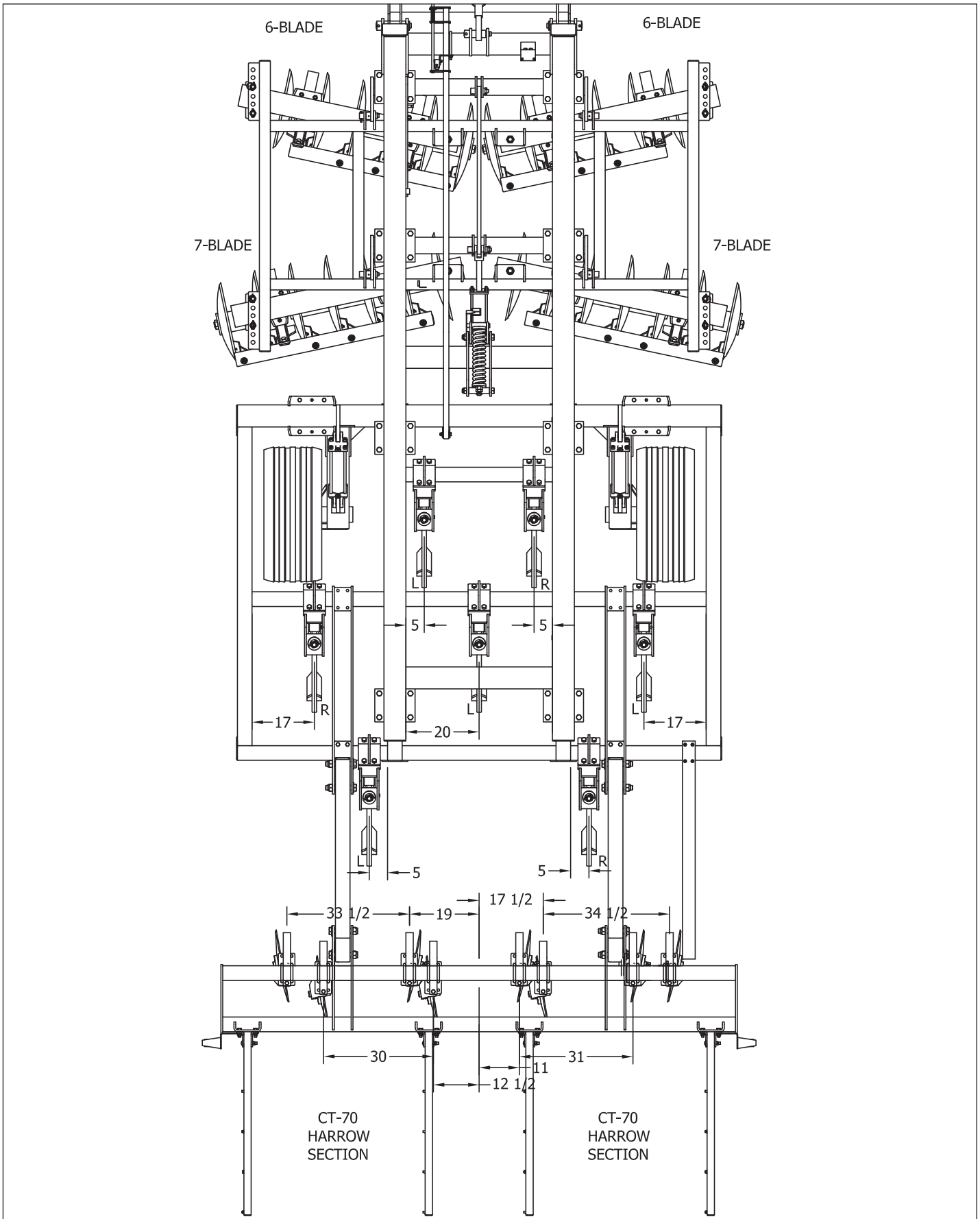
Lubrication Points



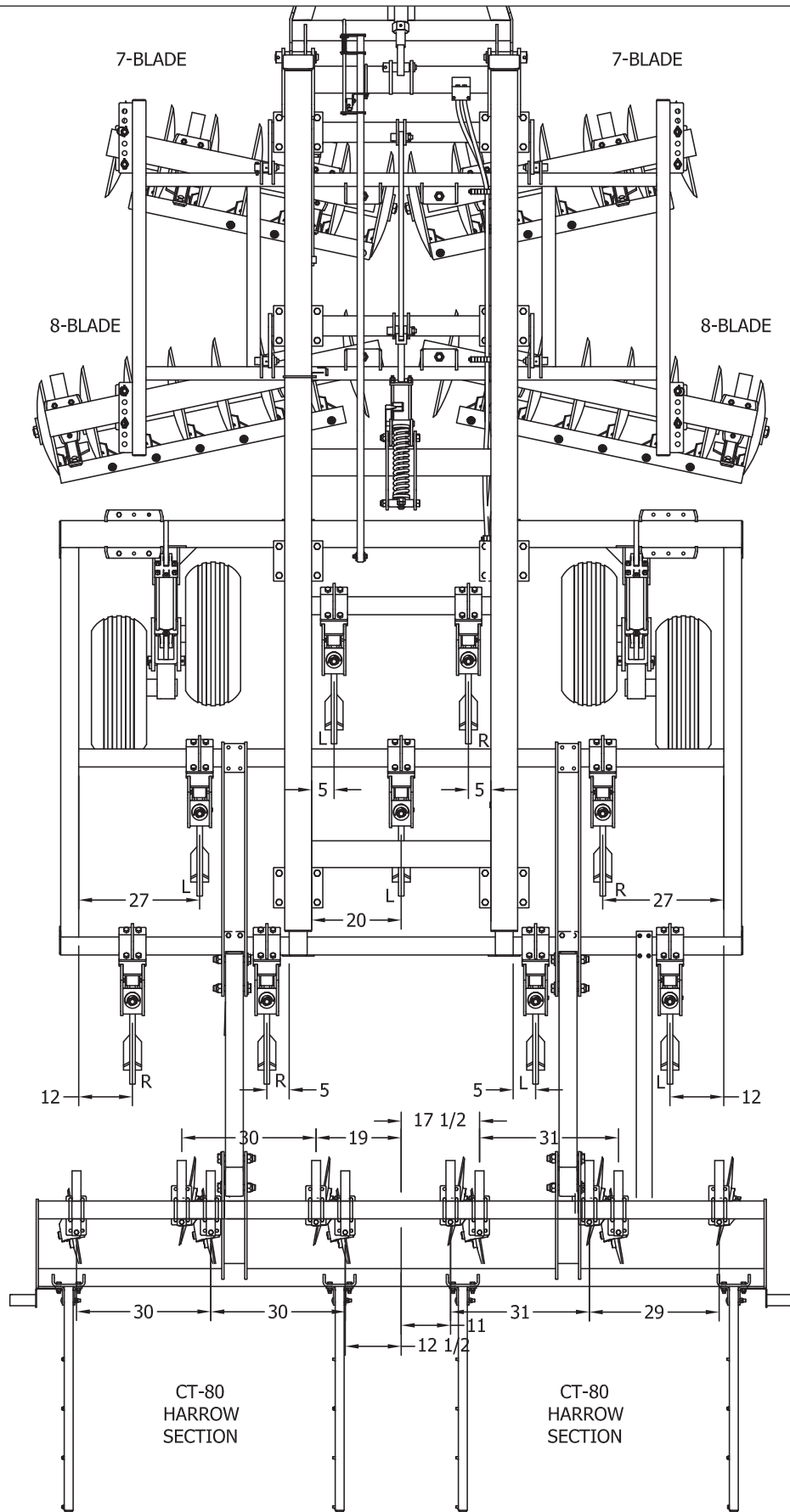
MF1-00306

Layout Diagrams

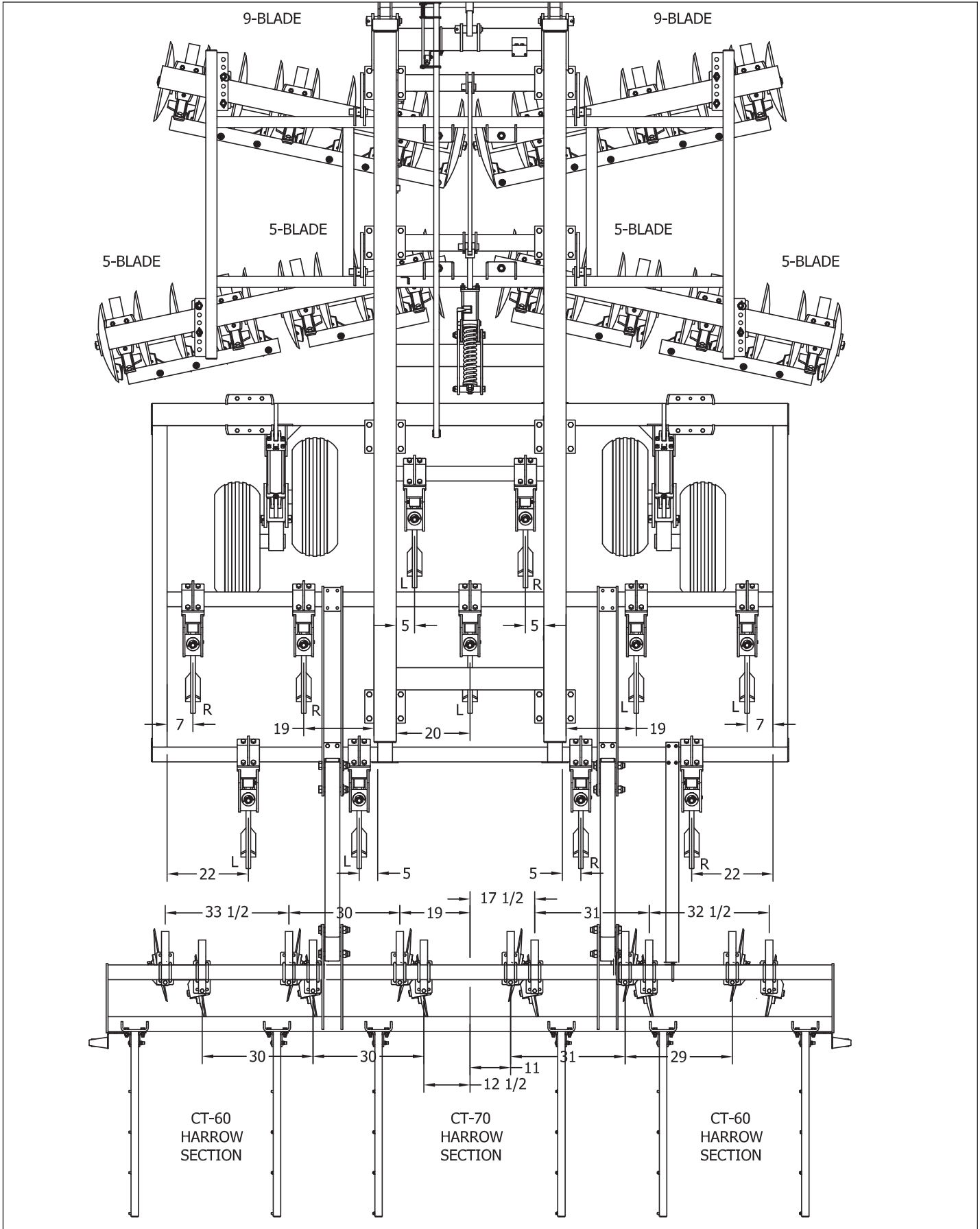
QT-207 - Shank Frame



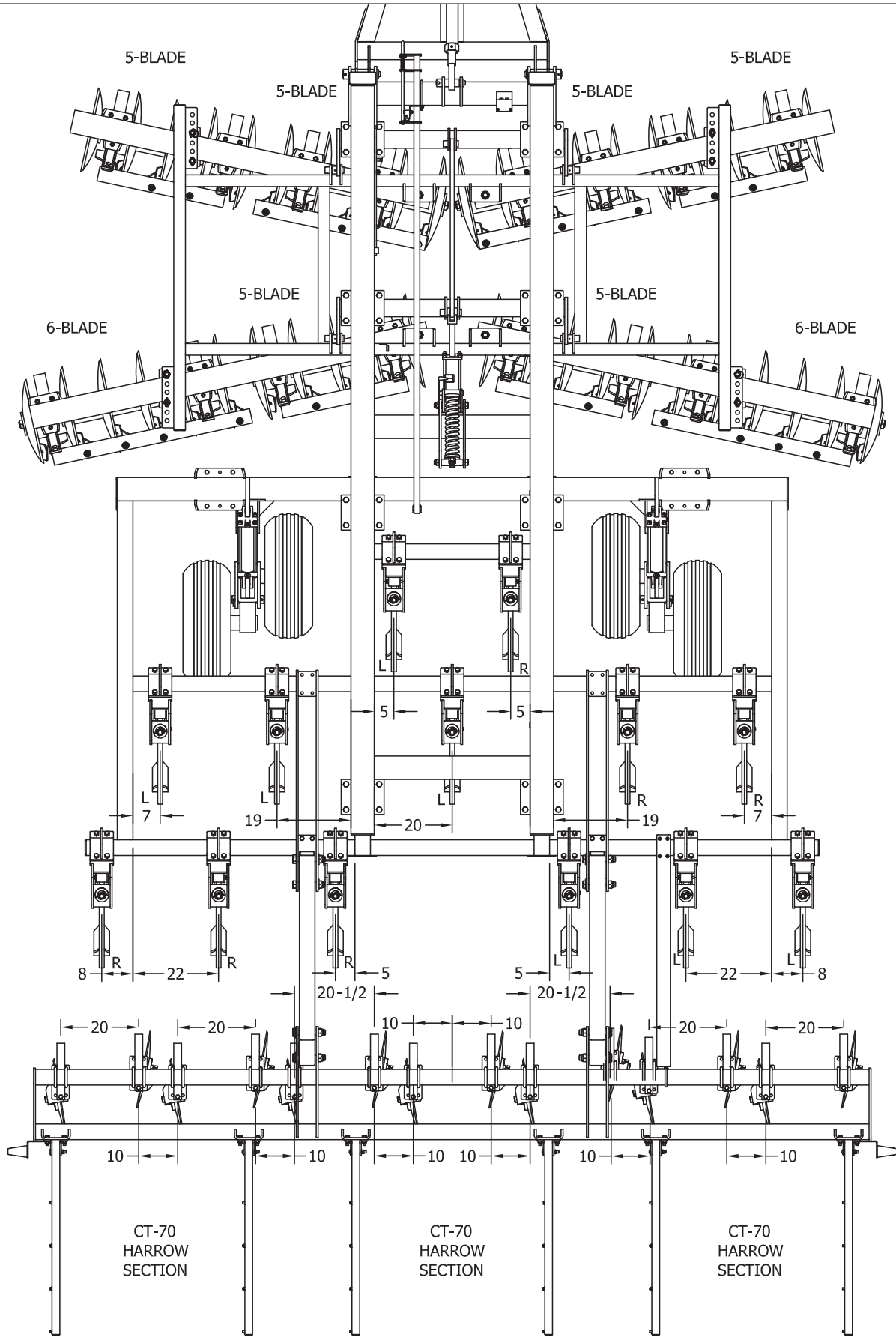
QT-209 - Shank Frame



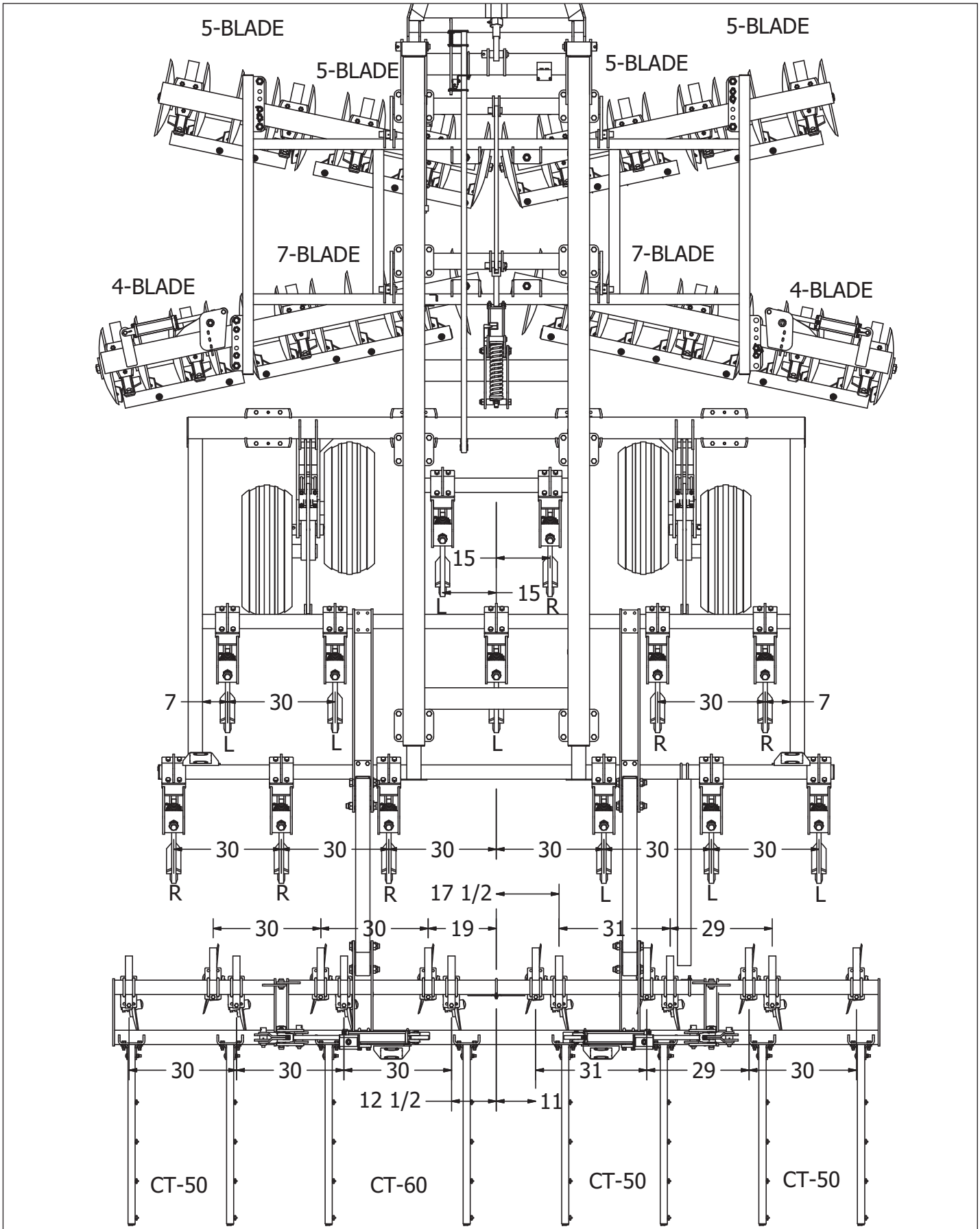
QT-211 - Shank Frame



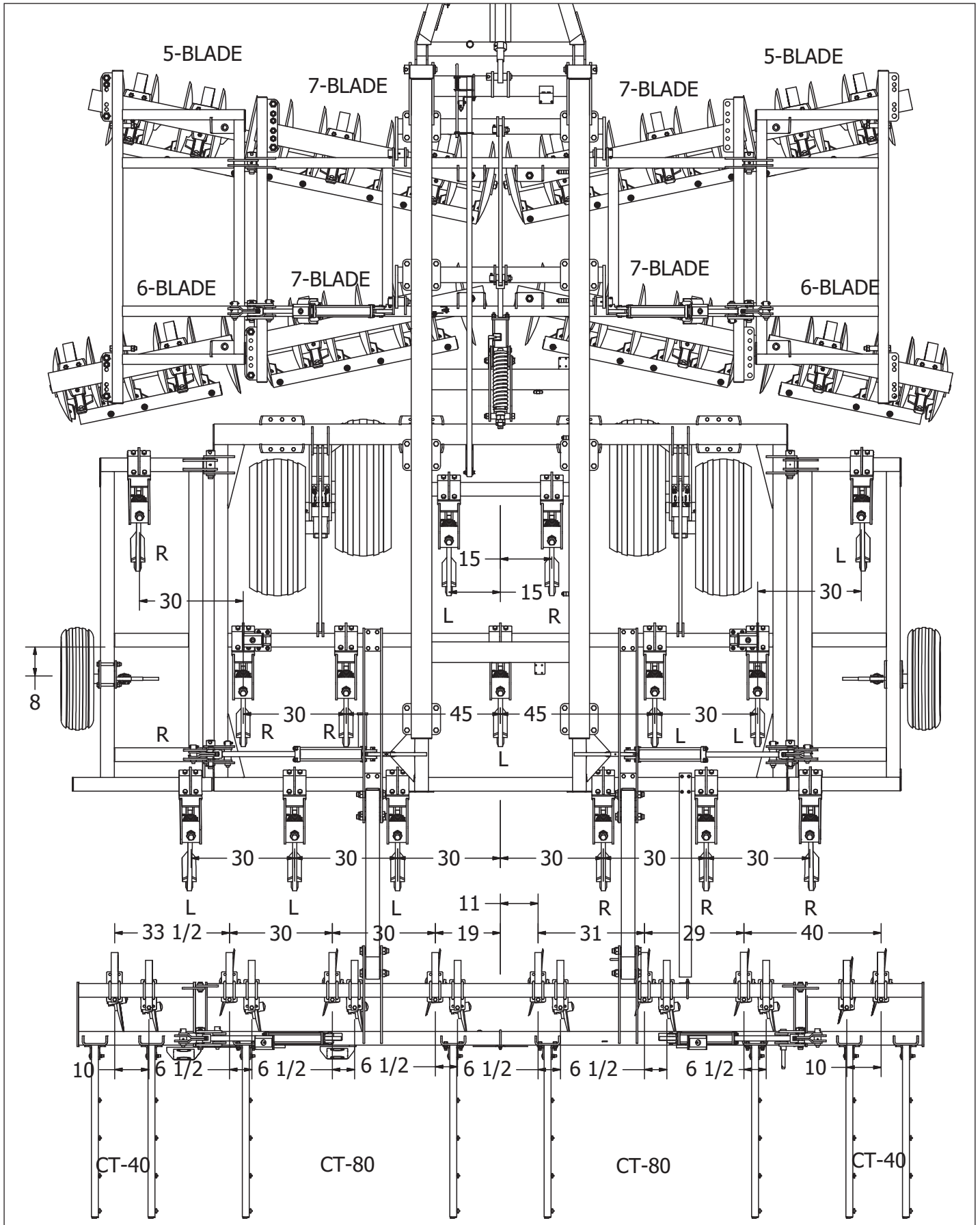
QT-213 - Shank Frame



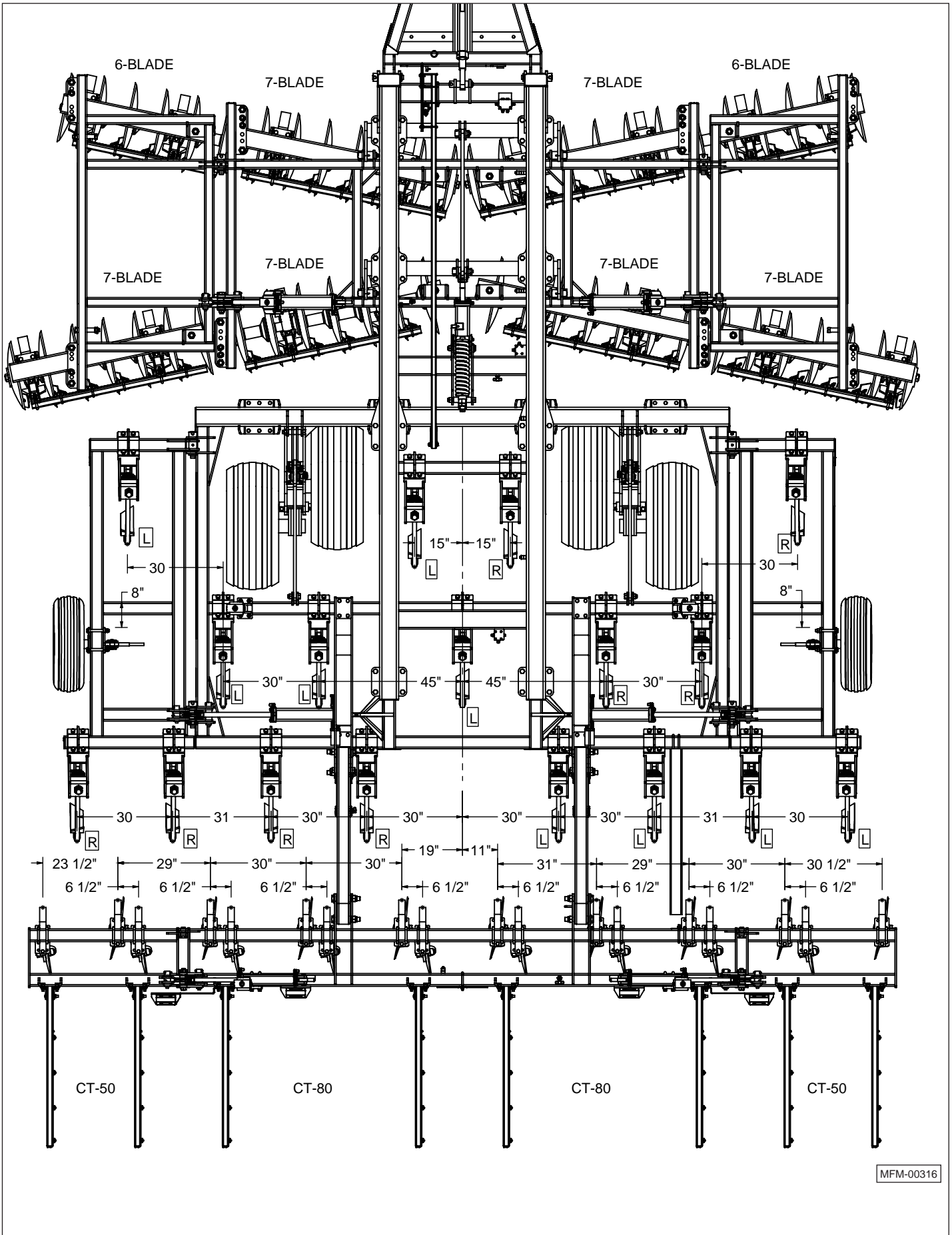
QT-213F - Shank Frame



QT-215F - Shank Frame

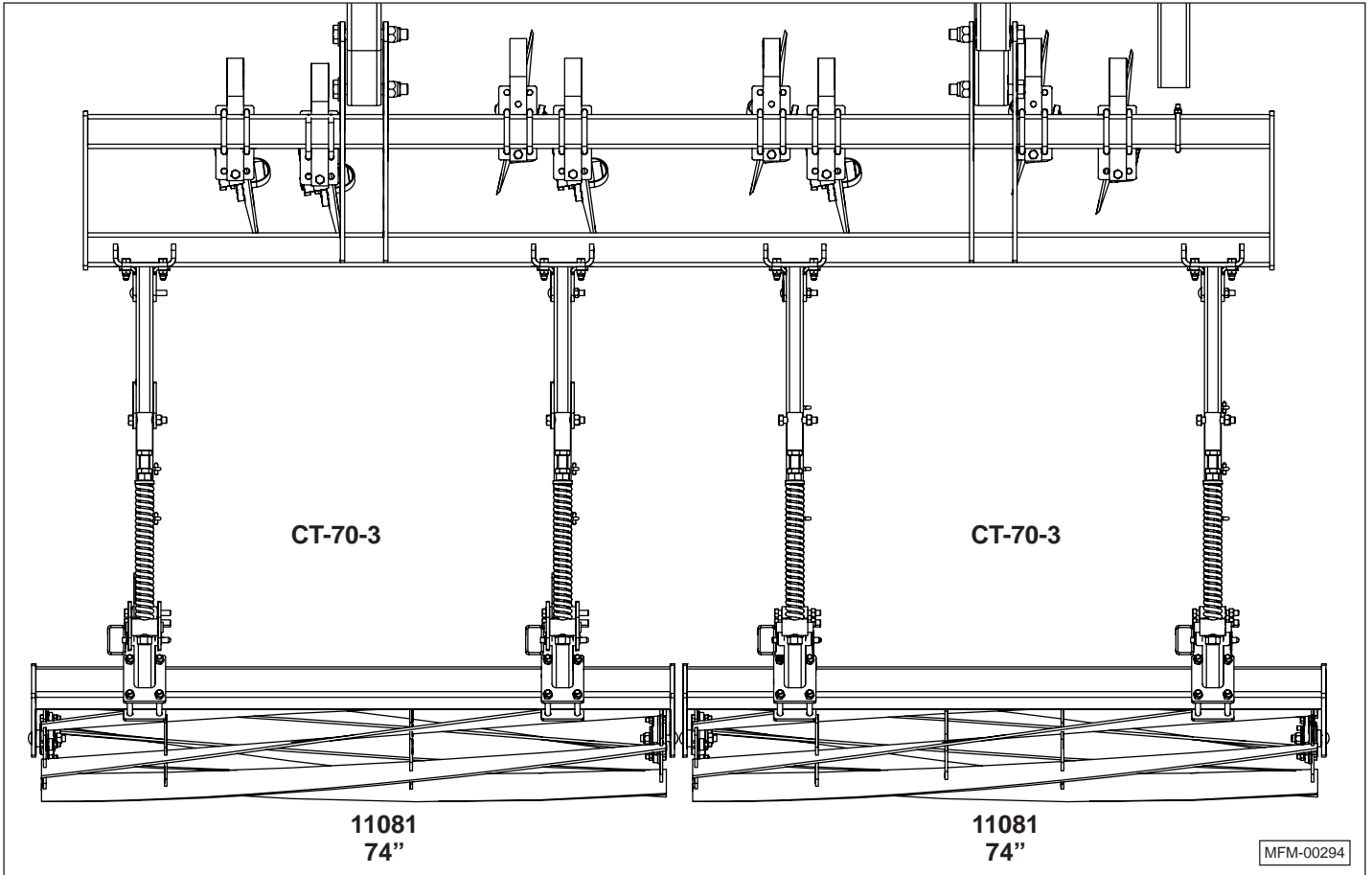


QT-217F - Shank Frame

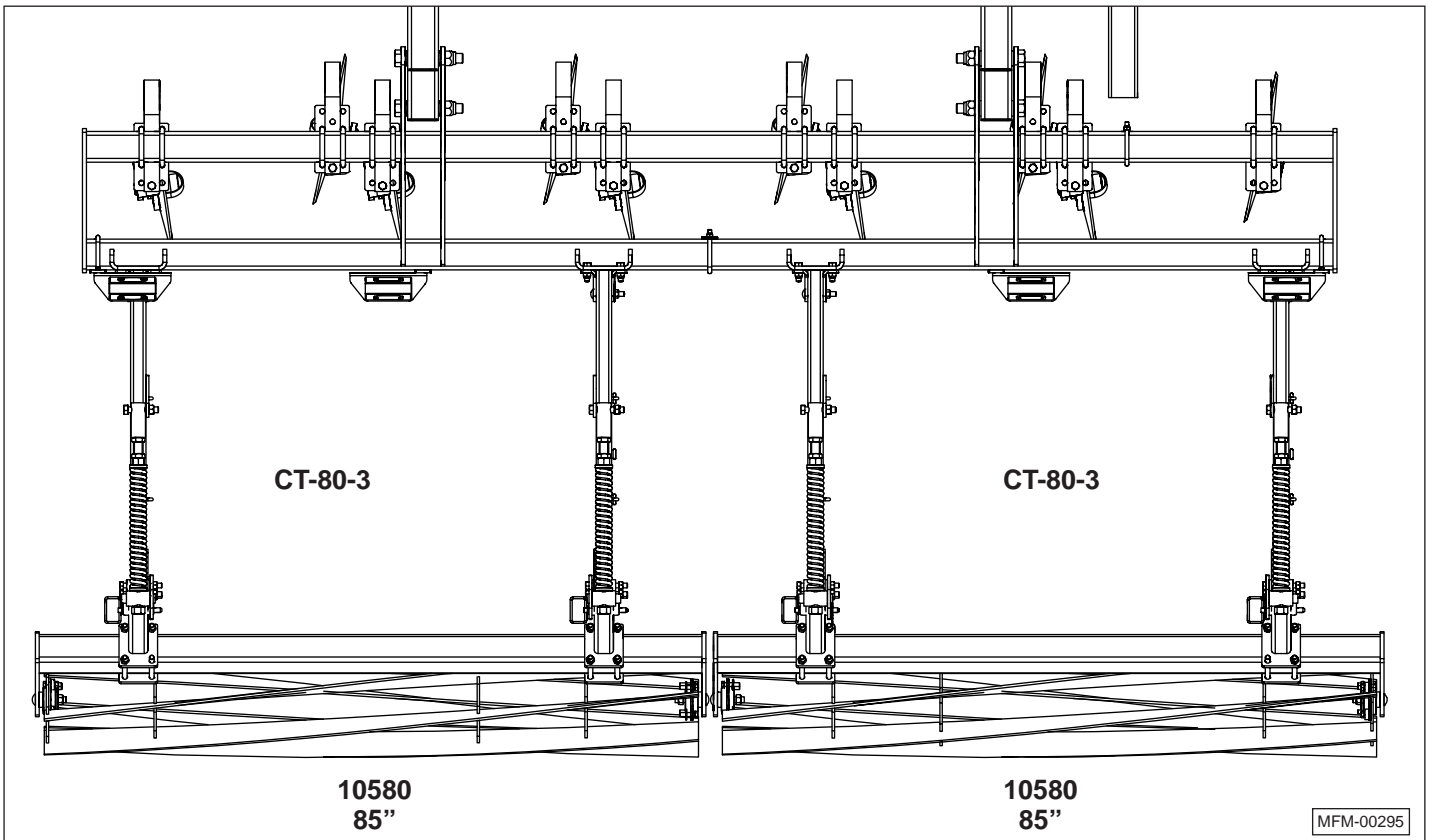


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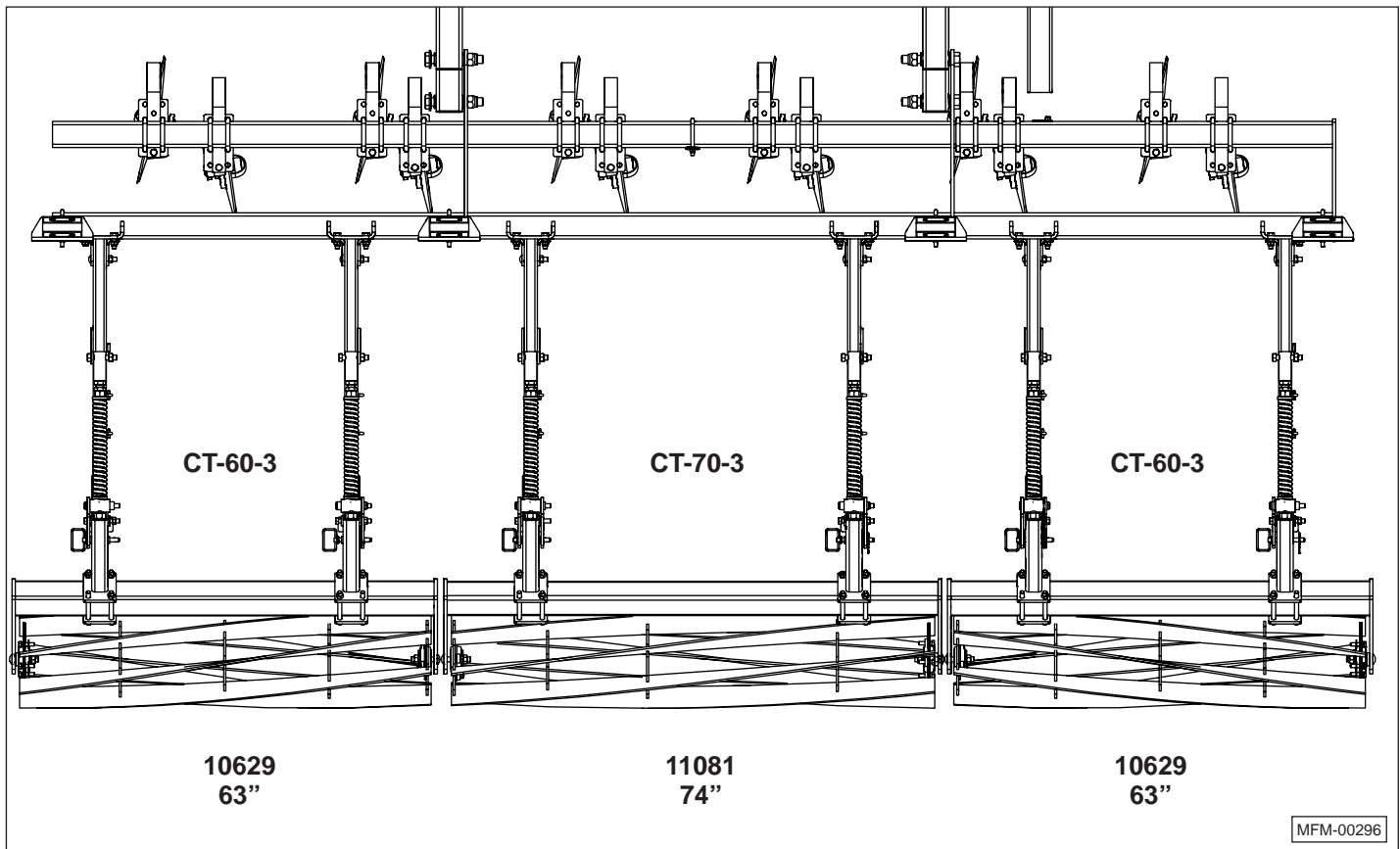
QT-207 - Rolling Basket



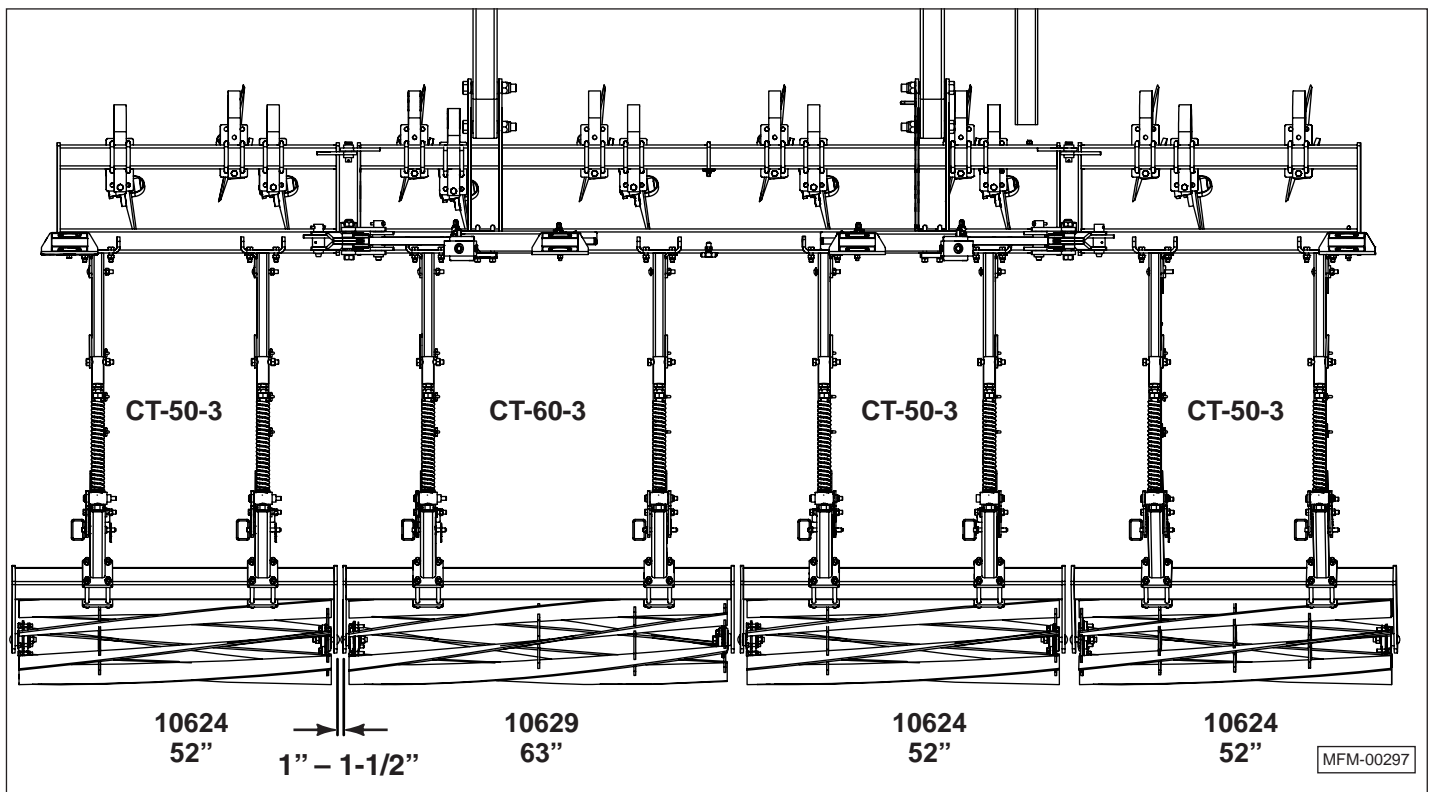
QT-209 - Rolling Basket



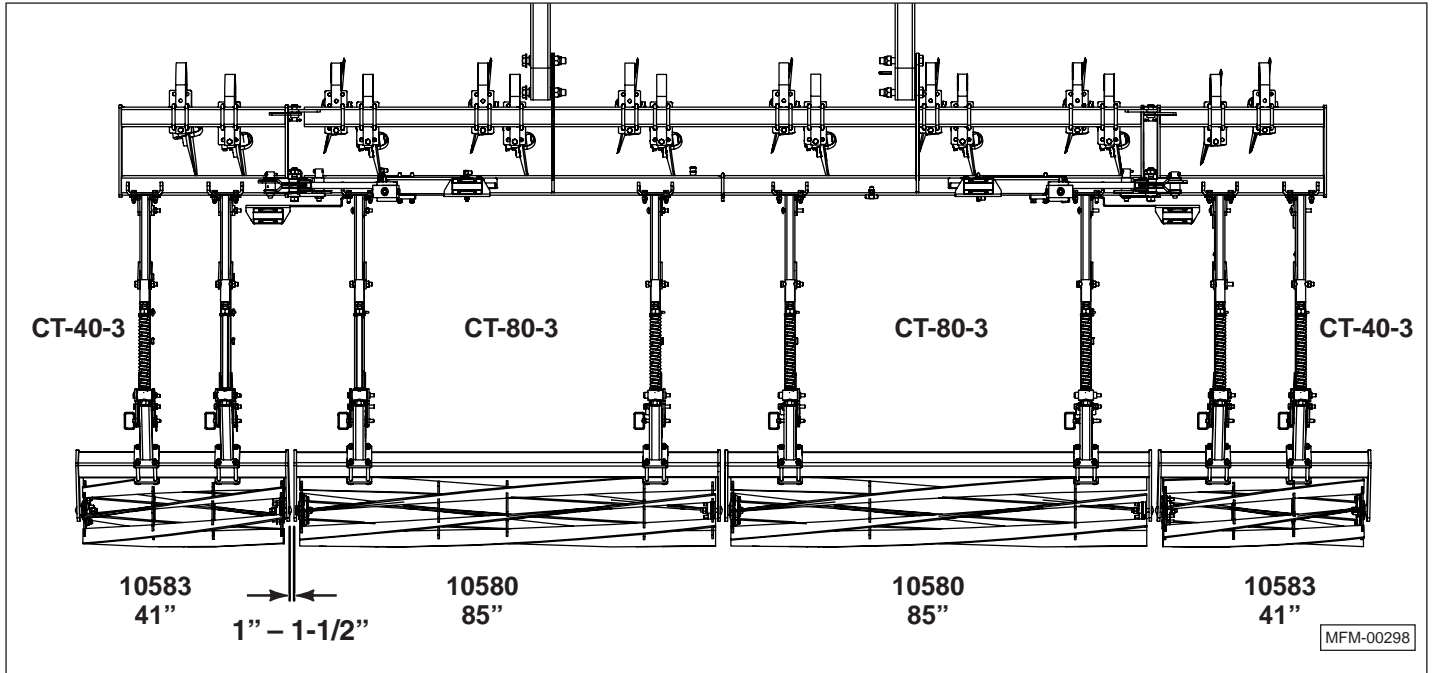
QT-211 - Rolling Basket



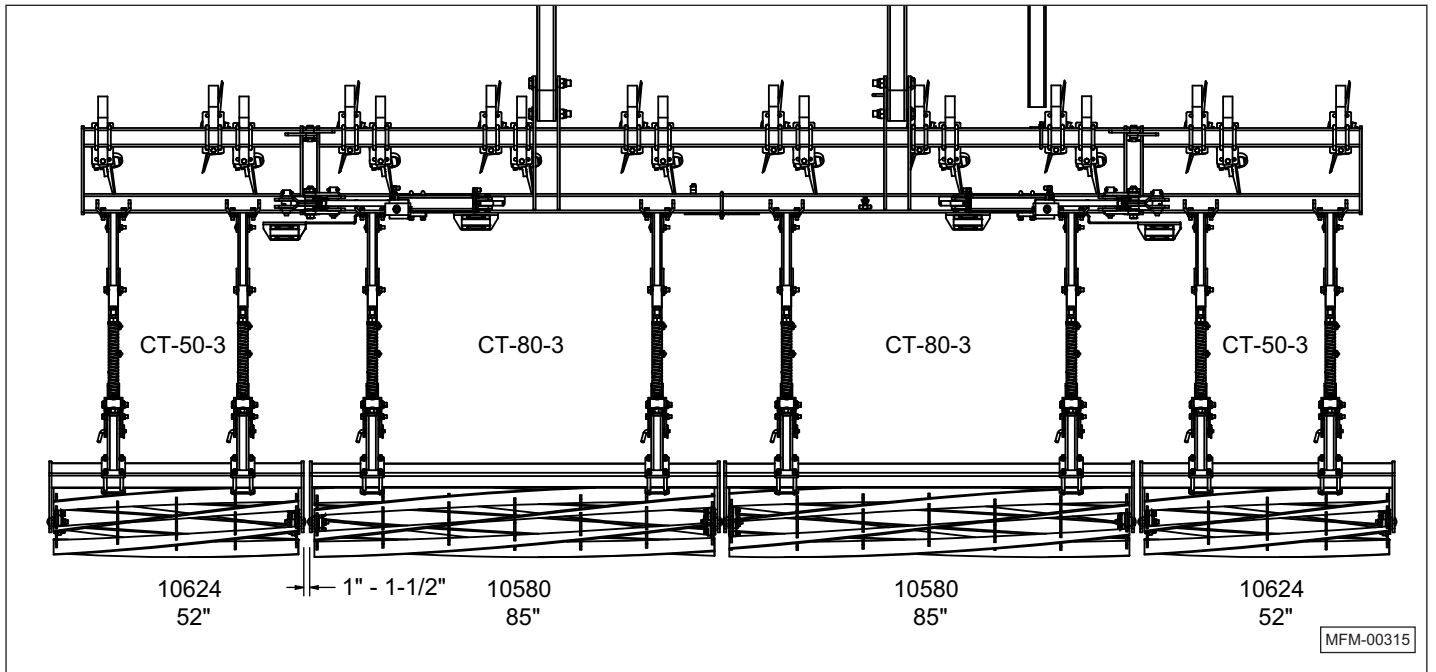
QT-213F - Rolling Basket



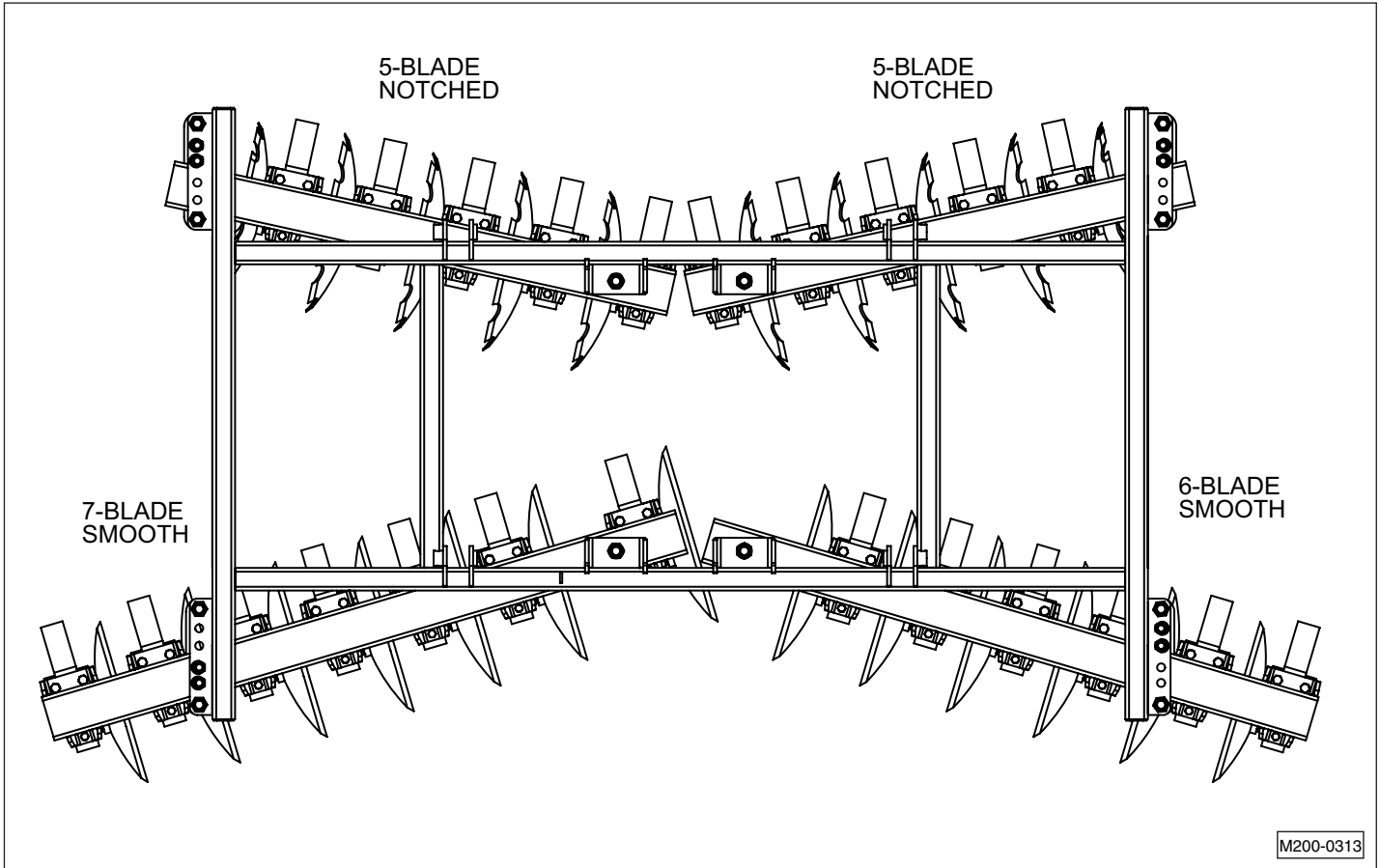
QT-215F - Rolling Basket



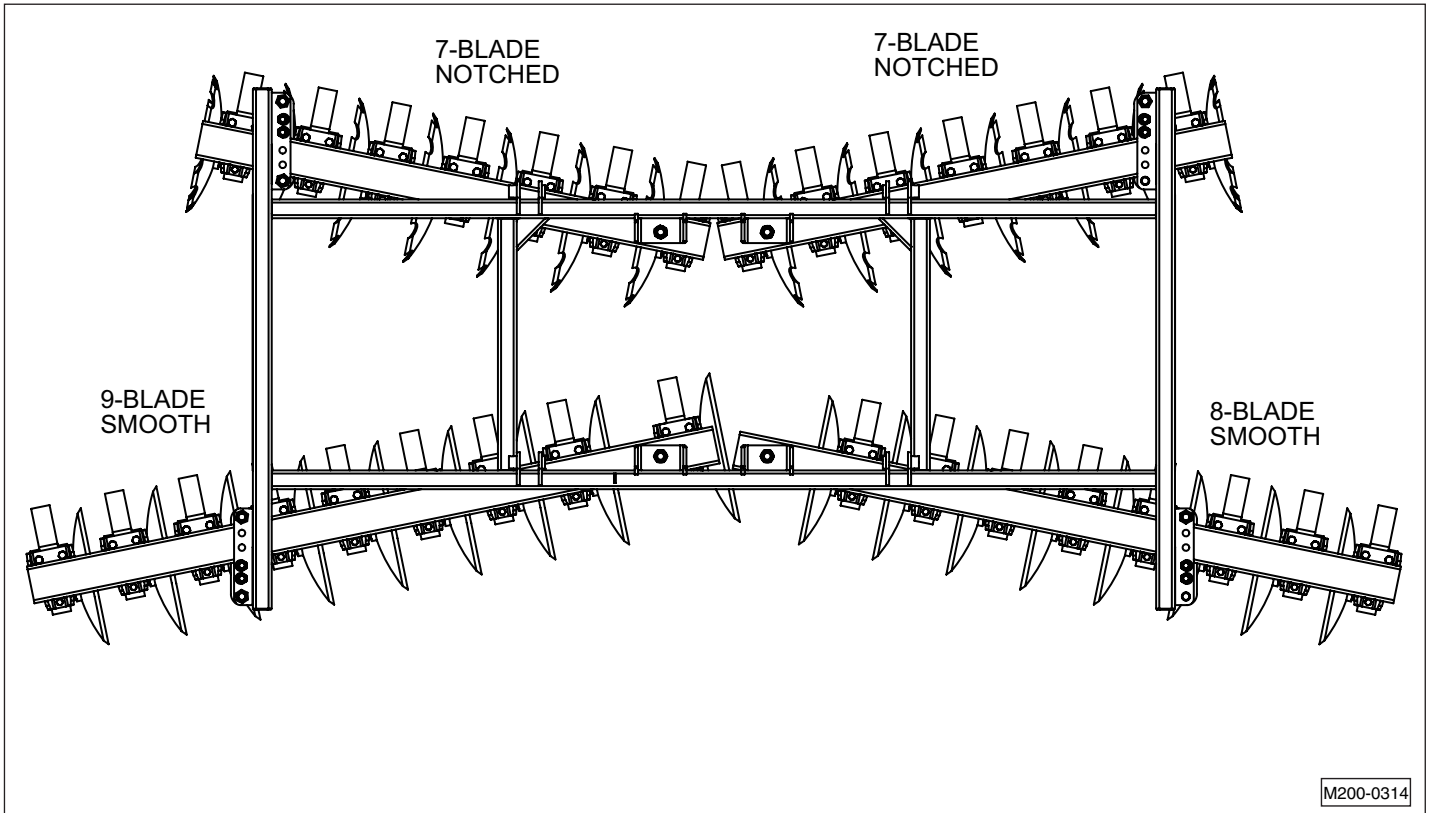
QT-217F - Rolling Basket



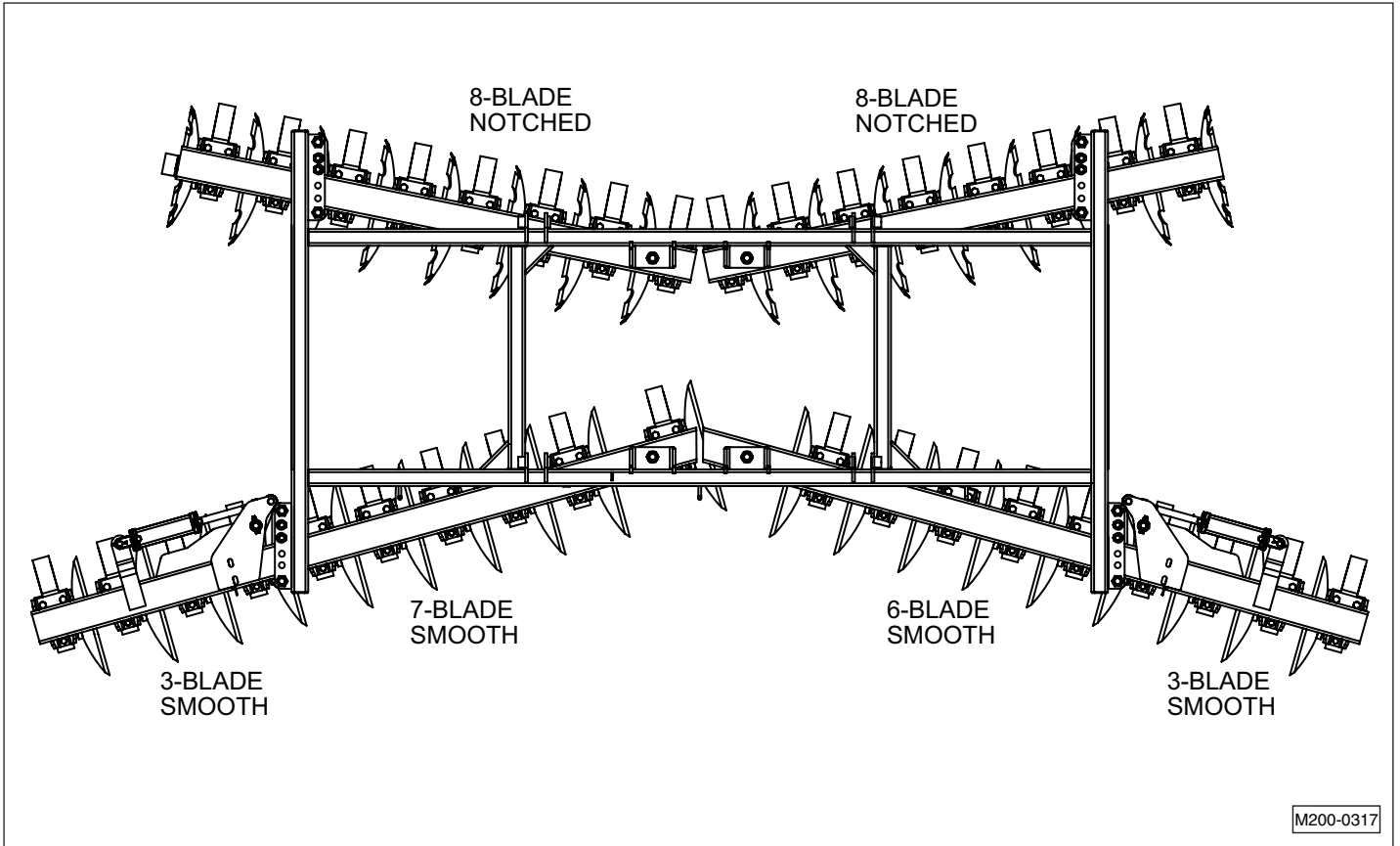
QT-209-I



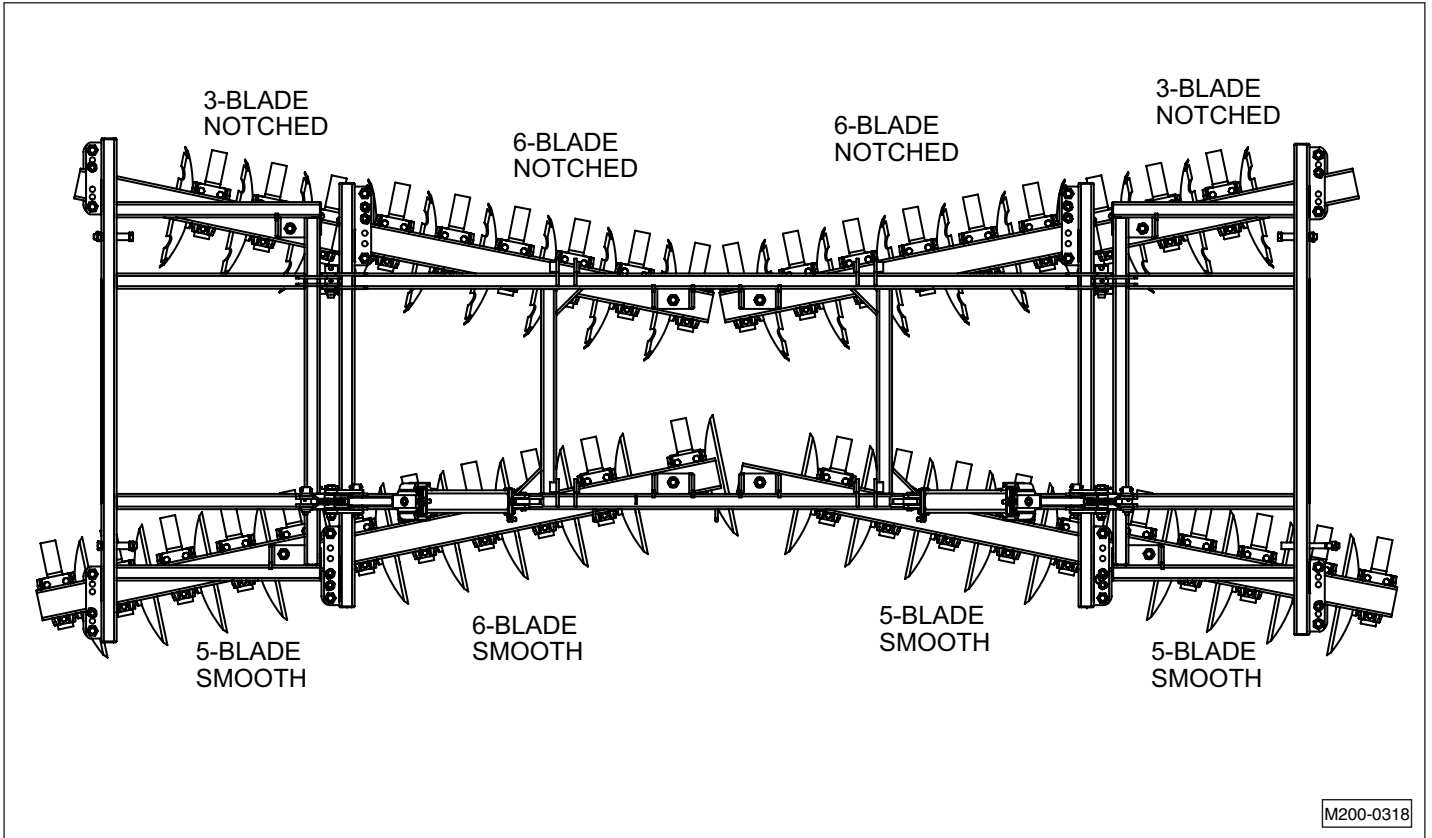
QT-211-I

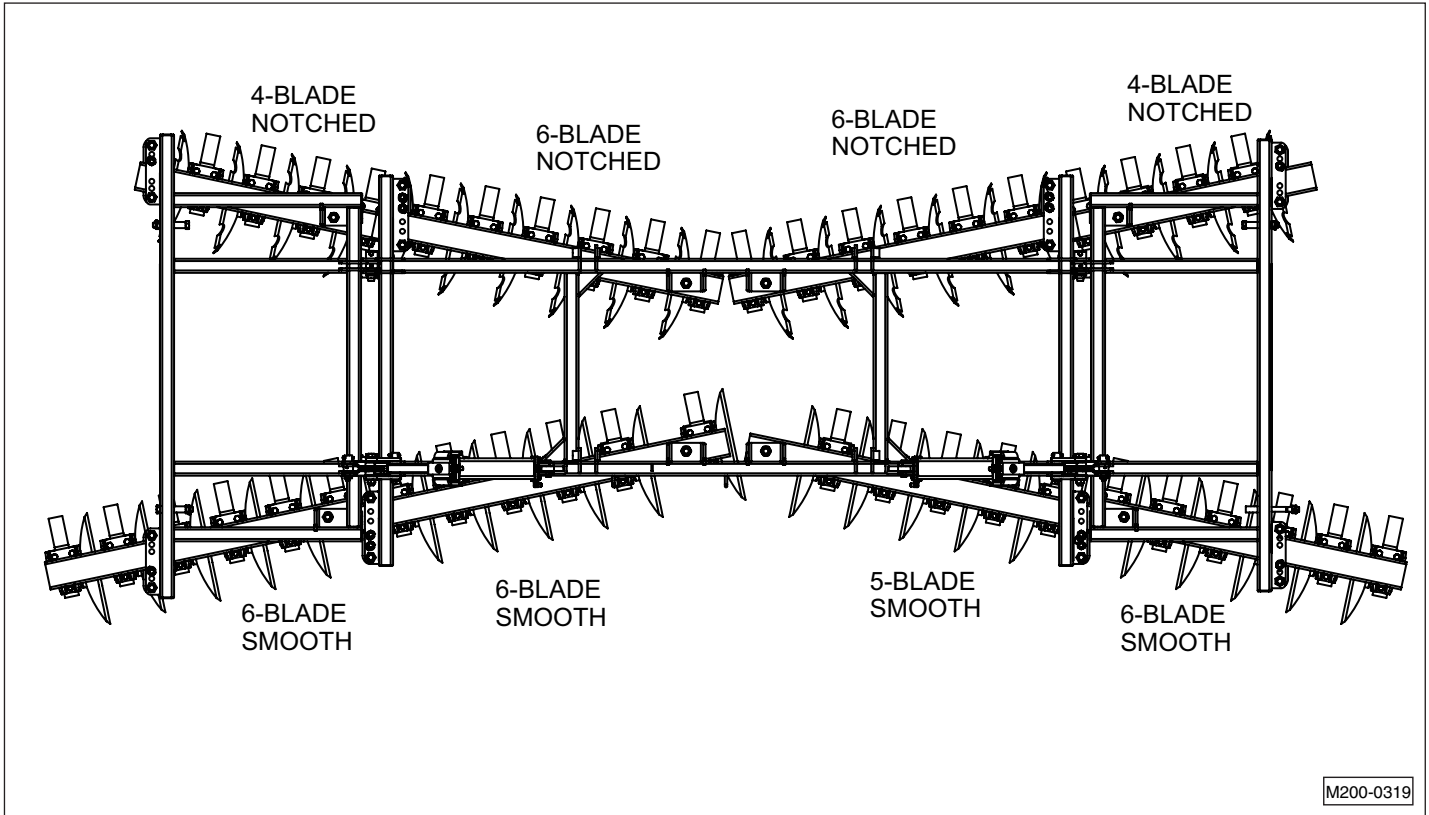


QT-213F-I



QT-215F-I





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