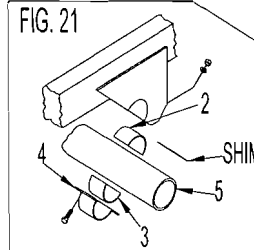
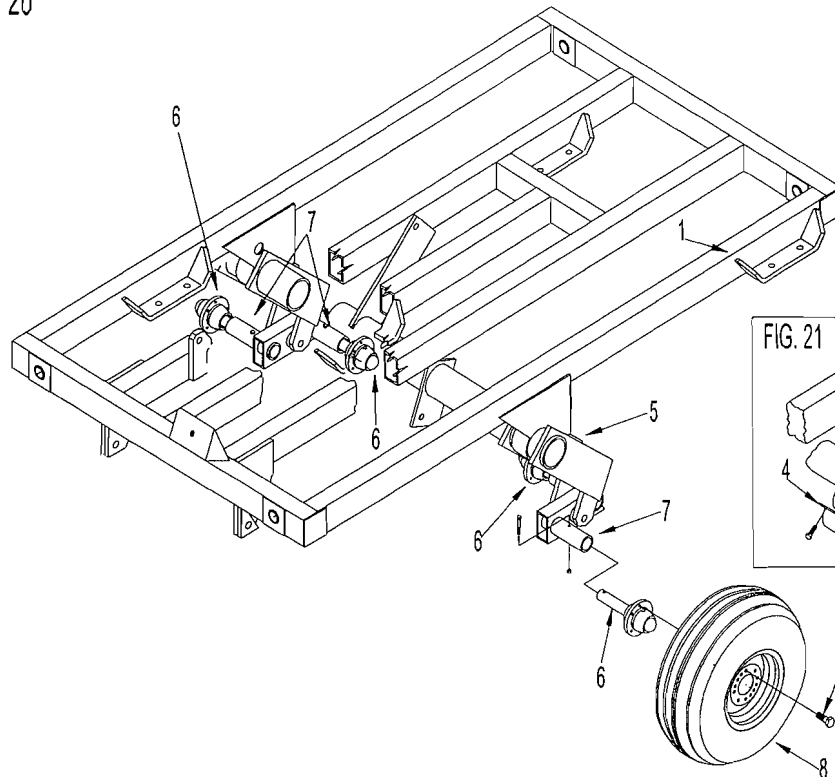


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FIG. 20



ASSEMBLY INSTRUCTIONS

1. See Fig. 20. Raise frame assembly, arrow 1 approximately 46" (1168 mm) from ground and block securely.
2. See Fig. 21. Locate six (6) plastic bearing liners, arrow 2 and 3, in one of the shipping cartons. Choose three (3) with 45 degree grease fittings and three (3) with straight grease fittings. Place a layer of grease on inside surface of each liner.
3. See Fig. 20 and 21. Remove cap, arrow 4, from each of the three rockshaft bearings. Next place one bearing liner, arrow 2, in each bearing using liner with 45 degree grease fitting. Install rockshaft, arrow 5, into the three bearings on main frame assembly. Position rockshaft so that outside bearings are positioned between wheel legs. Place bearing liner, arrow 3, over rockshaft using liner with straight grease fitting. Then secure rockshaft to each bearing with one bearing cap, arrow 4. Install necessary shims between bearing cap and bearing. See note below. Tighten bolts.

NOTE: *It will be necessary to install shims between half-clamp, arrow 4, and rockshaft bearing, to allow rockshaft to turn freely in bearing after bolts have been tightened. It is important to install correct number of shims. Normally 2 shims on top and 3 shims on bottom will provide correct clearance. Too many shims will leave a gap between bearing liners and rockshaft, not enough shims will cause bearing to be too tight resulting in premature liner wear. Rockshaft must be snug but free to turn.*

! WARNING: SUPPORT MAIN FRAME SECURELY BEFORE ASSEMBLING COMPONENTS. HEAVY FRAMES COULD CAUSE SERIOUS INJURY IF THEY FELL.



WARNING: SUPPORT MAIN FRAME SECURELY BEFORE ASSEMBLING COMPONENTS. INADEQUATE SUPPORT MAY RESULT IN THE HEAVY COMPONENTS FALLING AND CAUSING SERIOUS INJURY TO YOU OR PERSON(S) NEARBY.

4. INSTALLING HUB ASSEMBLIES - See Fig. 20. Install four (4) eight bolt hub and spindle assemblies, arrow 6, into walking beam tubes, arrow 7. Fasten each spindle to the tube with one (1) 1/2" x 4" (12.7 mm x 102 mm) N.C. hex bolts complete with 1/2" (12.7 mm) nylon locknut.
5. INSTALLING TIRE AND WHEEL ASSEMBLIES - See Fig. 20. Install one (1) eight bolt tire and wheel assembly, arrow 8, to hub assembly, arrow 6, on each side of each wheel leg. Centre frame uses 12.5L x 15 F1, load range F tires. Secure back wheel with eight (8) 9/16" x 1-11/16" (14.2 mm x 42.7 mm) wheel bolts, arrow 9. Tighten wheel bolts to 130 ft. lbs. (176.3 N·m). Lock each wheel bolt by installing one (1) 9/16" (14.2 mm) N.F. hex nut on thread that extends past hub. Tighten nuts.



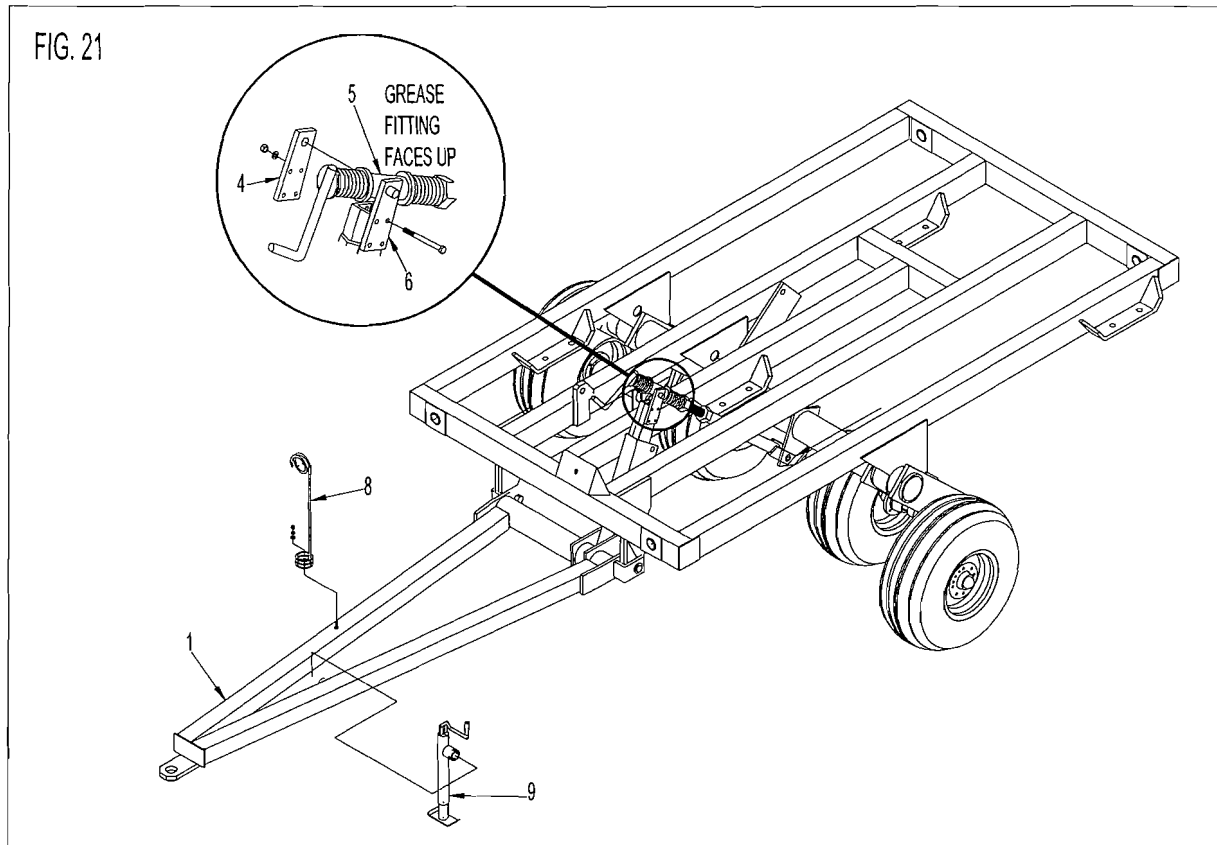
IMPORTANT: WHEEL BOLTS MUST BE KEPT TIGHT. IF BOLTS ARE NOT TIGHT THEY WILL LOOSEN CAUSING SEVERE DAMAGE TO HUB, WHEEL AND TIRE. CHECK WHEEL BOLTS PERIODICALLY, ESPECIALLY THE FIRST FEW HOURS OF OPERATION, EITHER TRANSPORT OR FIELD WORK.



WARNING: USE ADEQUATE MANPOWER OR A HOIST TO LIFT HEAVY COMPONENTS IN PLACE. ATTEMPTING TO LIFT HEAVY COMPONENTS BY YOURSELF COULD CAUSE SERIOUS INJURY.



CAUTION: WHEN ASSEMBLING DISC USE ALIGNING PUNCHES TO LINE UP HOLES. KEEP FINGERS OUT OF HOLES.



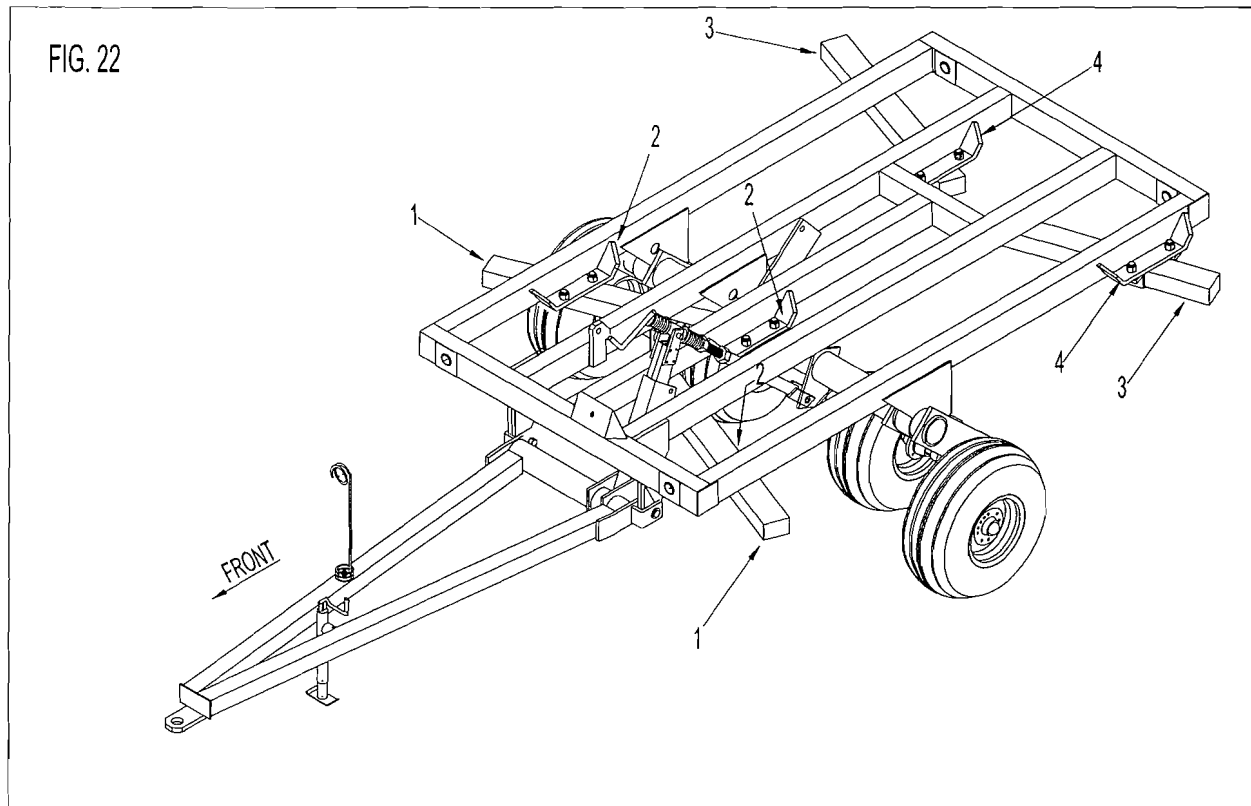
6. See Fig. 21. Attach hitch assembly, arrow 1, to hitch lugs on main frame with two (2) 1-1/2" dia. x 5" (38.1 mm dia. x 127 mm) pins. Secure each pin with one (1) 7/16" (10.9 mm) lynch pin.
7. See Fig. 21. To attach levelling crank, arrow 2, to levelling arm, arrow 3, remove bolt-on lug, arrow 4, of hitch levelling arm. Next, install 1" (25 mm) diameter pin of bearing tube, arrow 5, into weld-on lug, arrow 6, of levelling arm. Position bearing tube so grease fitting is facing up. Place bolt-on lug, arrow 4, over outside of levelling crank. Install 1" (25 mm) diameter pin of bearing tube into bolt-on lug. Fasten the bolt-on lug to the levelling arm with four (4) 1/2" x 5" (12.7 mm x 127 mm) N.C. hex bolts c/w nuts and lockwashers.
8. See Fig. 21. Attach clevis end of levelling link, arrow 2, to arm, arrow 7, on rockshaft. Fasten with one 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) bolt c/w nut and lockwasher. Tighten bolt to 840 ft. lbs. (1139 N · m).

NOTE: The 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) bolt must be tightened so that the clevis is drawn up tight against the ball joint in arm, arrow 7. Tighten bolt to 840 ft. lbs. (1139 N · m). Ball must also be free to pivot in socket. Lubricate ball with oil and turn in socket to make sure ball is free to pivot.

9. See Fig. 21. Fasten hose support, arrow 8, to a bolt welded to top of hitch. Secure with (1) 5/8" (15.7 mm) nut, (1) 11/16" (17.2 mm) I.D. flatwasher, and (1) 5/8" (15.7 mm) lockwasher.
10. See Fig. 21. Mount hitch jack, arrow 9, on round tube welded to inside of hitch. Jack pivots on mounting tube and can be placed in vertical position for supporting disc hitch or horizontal position while disc is in motion. Lock jack in desired position with pin.

IMPORTANT: JACK MUST BE IN HORIZONTAL POSITION WHEN DISC IS IN MOTION. IF JACK IS IN VERTICAL POSITION WHEN DISC IS IN MOTION, JACK MAY STRIKE GROUND OR OBSTRUCTION ON GROUND, CAUSING SEVERE DAMAGE TO JACK, BE SURE CRANK OF JACK IS NOT HANGING BELOW HITCH WHEN JACK IS IN HORIZONTAL POSITION. PLACE CRANK ON TOP OF HITCH TO AVOID DAMAGE.

FIG. 22



11. ATTACHING MAIN FRAME GANG BEAMS - See Fig. 22 and 23.

NOTE: Determine front and rear main frame gang beams by length. For gang beam lengths refer to chart on page 36.

- a) Attach front gang beams, arrow 1, to mount brackets, arrow 2, welded to inside and outside frame members. Fasten each gang beam with two (2) 1-1/4" x 3-1/2" (31.7 mm x 88.9 mm) N.C. hex bolts c/w nuts and lockwashers at each mount bracket. Front gang beams are L.H. and R.H. and must be positioned as shown. Tighten bolts to 840 ft. lbs. (1139 N · m).
- a) Attach rear gang beams, arrow 3, to mount brackets, arrow 4, welded to inside and outside frame members. Fasten each gang beam with two (2) 1-1/4" x 3-1/2" (31.7 mm x 88.9 mm) N.C. hex bolts c/w nuts and lockwashers at each mount bracket. Rear gang beams are L.H. and R.H. and must be positioned as shown. Tighten bolts to 840 ft. lbs. (1139 N · m).

FIG. 23

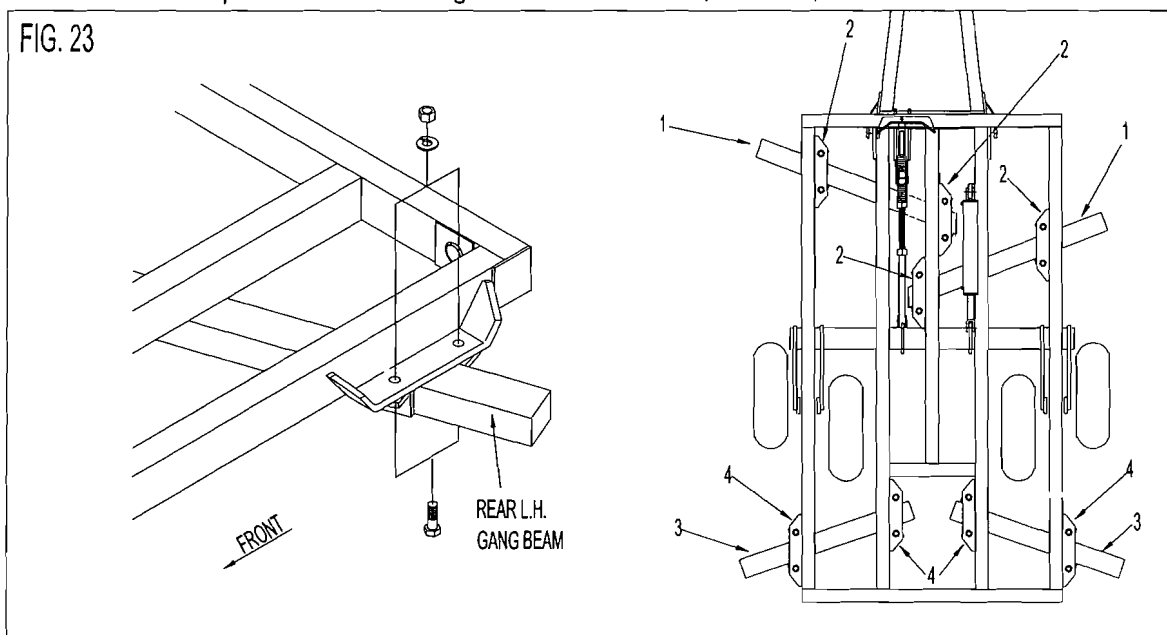
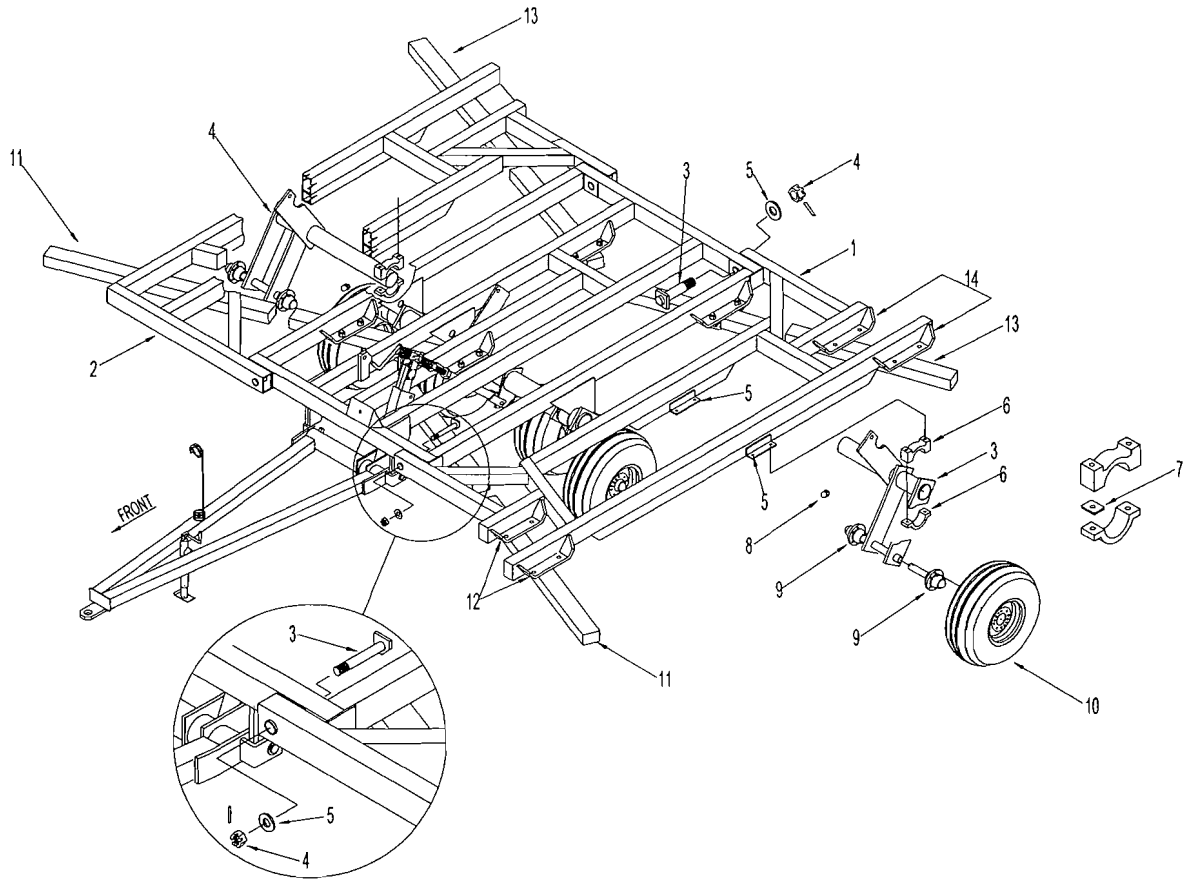


FIG. 24



12. See Fig. 24. Locate one (1) wing frame, arrows 1 and 2, on each side of main frame. Wing frames are L.H. and R.H. and must be positioned as shown. Bolt front hinge tube of each wing frame to mount tubes in front tube of main frame. Secure each wing with one (1) 1-15/16" dia. pin x 13-1/2" (49mm x 343mm) hinge bolt, arrow 3, c/w 2" (50.8mm) slotted nut, arrow 4, and 2" I.D. x 1/2" (50.8mm x 12.7mm) washer, arrow 5. Install bolts from inside of main frame.
Bolt rear hinge tubes of each wing frame to wing mount tubes in rear of main frame. Secure each wing with one (1) 1-15/16" dia. x 13-1/2" hinge bolt (49mm x 343mm) c/w 2" (50.8mm) slotted nut and 2" I.D. x 1/2" (50.8mm x 12.7mm) washer, arrow 5. Install bolts from inside of main frame. Tighten all four (4) hinge bolts enough to remove end play. Do not over tighten hinge bolts. Install 3/8" x 3" (9.4mm x 76.2mm) cotter pins in all slotted nuts.
13. Attaching Wing Frame Gang Beams - See Fig. 24.
Note: Determine front and rear wing frame gang beams by length. For gang beam lengths refer to chart on page 36.
 - a) Attach front gang beams, arrow 11, to brackets, arrow 12, welded to inside and outside frame members. Fasten each gang beam with two (2) 1-1/4" x 3-1/2" N.C. (31.7 x 88.9mm) hex bolts c/w nuts and lockwashers at each mount bracket. Front gang beams are L.H. and R.H. and must be positioned as shown. Tighten bolts to 840 ft. lbs. (1139 N.m).
 - b) Attach rear gang beams, arrow 13, to brackets, arrow 14, welded to inside and outside frame members. Fasten each gang beam with two (2) 1-1/4" x 3-1/2" N.C. (31.7 x 88.9mm) hex bolts c/w nuts and lockwashers at each mount bracket. Front gang beams are L.H. and R.H. and must be positioned as shown. Tighten bolts to 840 ft. lbs. (1139 N.m).

WARNING: USE ADEQUATE MANPOWER OR A HOIST TO LIFT HEAVY COMPONENTS INTO PLACE. ATTEMPTING TO LIFT HEAVY COMPONENTS BY YOURSELF COULD CAUSE SERIOUS INJURY.

WARNING: SUPPORT WING FRAMES SECURELY BEFORE ASSEMBLING COMPONENTS. HEAVY FRAME COULD CAUSE SERIOUS INJURY IF THEY FELL.

CAUTION: WHEN ASSEMBLING DISC, USE ALIGNING PUNCH TO LINE UP HOLES. KEEP FINGERS OUT OF HOLES.

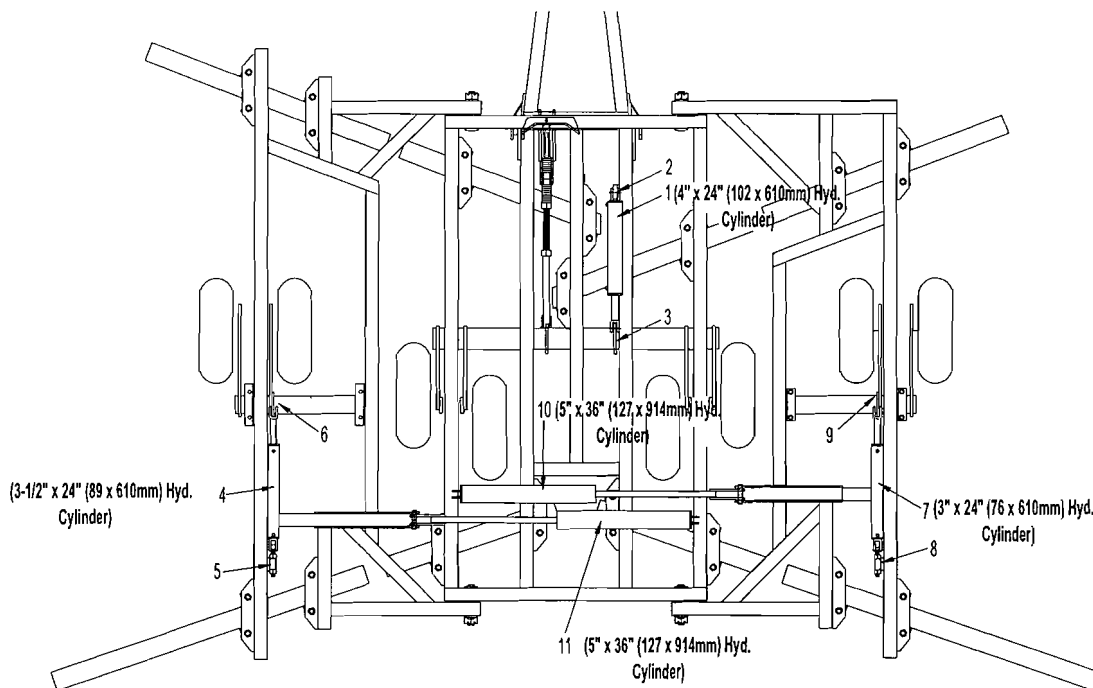
14. See Fig. 24. Fasten L.H. and R.H. wing rockshafts, arrow 3 and 4, to bottom of L.H. and R.H. wing frames. Be sure correct rockshaft is used. Wheel leg points forward with cylinder arm on top. Secure each rockshaft to two (2) bearing brackets, arrow 5, with two (2) sets of 5-1/2" (139.7 mm) rockshaft bearings, arrow 6. Fasten each rockshaft bearing set to bearing bracket with two (2) 3/4" x 6-1/2" (19 mm x 165 mm) hex bolts c/w nuts and lockwasher. Position top half of rockshaft bearing so grease hole faces front. Position bottom half of rockshaft bearing so grease holes faces the rear. After tightening rockshaft bearing bolts, rockshaft should be free to pivot in bearing.

NOTE: *If rockshaft bearing are too tight and don't allow rockshaft to turn freely, place necessary 2" x 3" (50.8 x 76.2) shims, arrow 7, (as required) between bearing halves. Shim(s) are packed in hydraulic hose and fitting box.*

NOTE: *Before installing rockshaft bearings place a coat of grease on bearing surface.*

15. See Fig. 24. Install one (1) grease fitting, arrow 8, in top half of each bearing assembly.
16. See Fig. 24. Install two (2) 6 bolt hub and spindle assemblies, arrow 9, into spindle mounting tubes at bottom of wheel leg of each rockshaft, arrows 3 and 4. Secure each spindle with one (1) 1/2" x 3-1/2" (12.5mm x 89mm) hex bolt c/w nylon lock nut.
17. See Fig. 24. Install one (1) six bolt tire and wheel assembly, arrow 10, to each hub assembly, arrow 9. Secure each wheel with six (6) 9/16" x 1-1/8" (14.2mm x 28.5mm) wheel bolts tighten wheel bolts to 130 ft. Lbs. (176.3 N · m.).

FIG. 25



18. See Fig. 25. Fasten one (1) 4" x 24" (101.6 mm x 610 mm) lift cylinder, arrow 1, to main frame and rockshaft arm. Fasten barrel end to cylinder lug, arrow 2. Position so ports face L.H.S. Fasten shaft end to cylinder arm, arrow 3, on rockshaft. Fasten each end of cylinder with one (1) 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) pin. Secure cylinder pins with 5/16" x 2" (7.8 mm x 50.8 mm) cotter pins.
19. See Fig. 25. Fasten one (1) 3-1/2" x 24" (88.9 mm x 610 mm) rockshaft cylinder, arrow 4, to L.H. wing frame and rockshaft arm. Fasten barrel end to 1-1/4" x 8" (31.7 mm x 203 mm) I-Bolt, arrow 5. Position so ports face up. Fasten shaft end to cylinder arm, arrow 6, on rockshaft. Fasten each end of cylinder with one (1) 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) pin. Secure cylinder pins with 5/16" x 2" (7.8 mm x 50.8 mm) cotter pins.
20. See Fig. 25. Fasten one (1) 3" x 24" (76.2 mm x 610 mm) rockshaft cylinder, arrow 7, to R.H. wing frame and rockshaft arm. Fasten barrel end to 1-1/4" x 8" (31.7 mm x 203 mm) I-Bolt, arrow 8. Position so ports face up. Fasten shaft end to cylinder arm, arrow 9, on rockshaft. Fasten each end of cylinder with one (1) 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) pin. Secure cylinder pins with 5/16" x 2" (7.8 mm x 50.8 mm) cotter pins.

IMPORTANT: IF CYLINDER PIN ON BARREL END IS NOT POSITIONED PROPERLY, SERIOUS DAMAGE MAY OCCUR TO CYLINDER OR I-BOLT. IF CYLINDER BARREL IS TURNED SO AXIS OF CYLINDER PIN IS NOT HORIZONTAL, CYLINDER WILL NOT BE FREE TO PIVOT UP AND DOWN WHEN CYLINDER IS ACTUATED.

21. ATTACHING WING LIFT CYLINDERS - See Fig. 25.

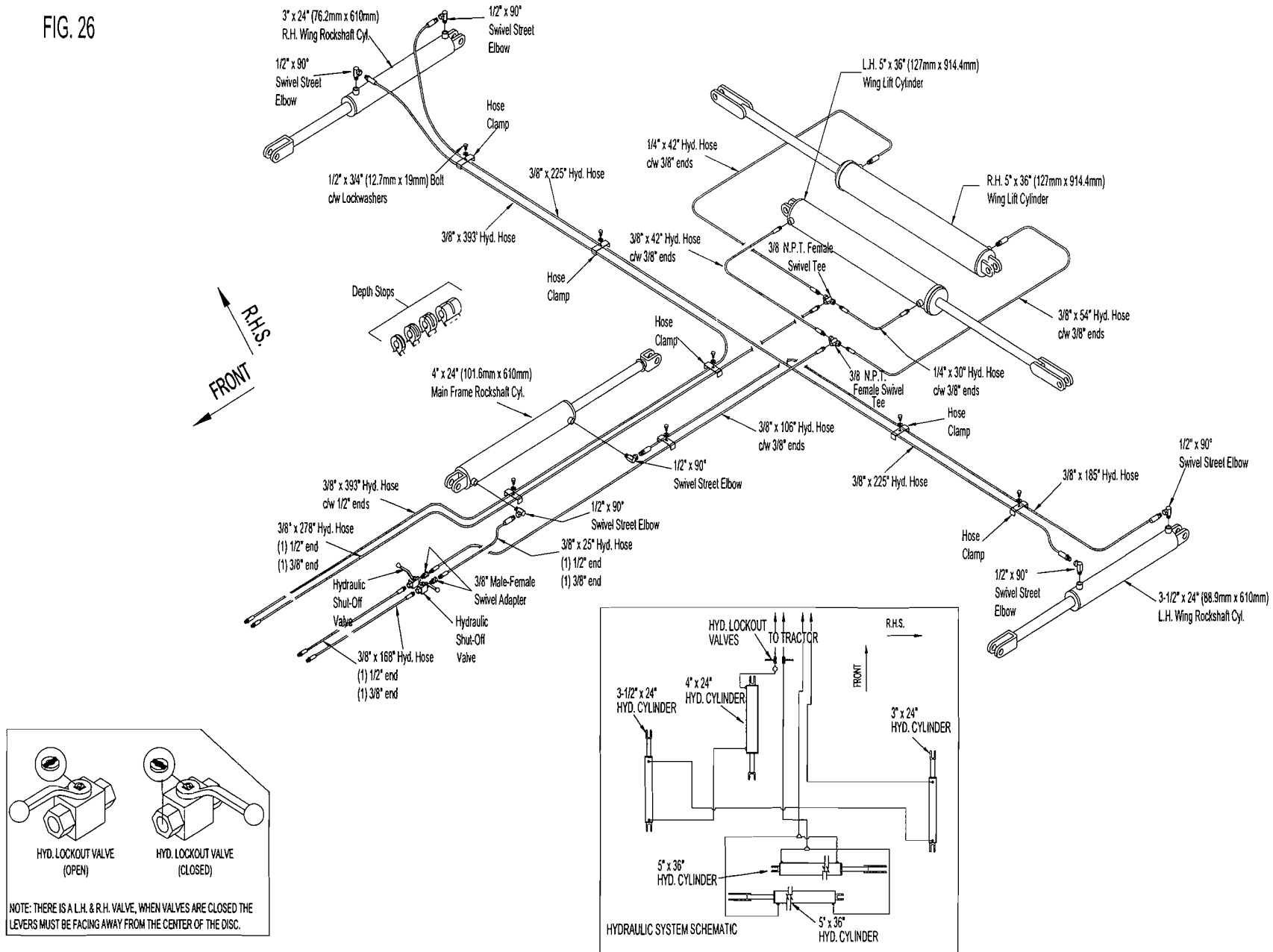
- (a) Fasten two (2) 5" x 36" (127 mm x 914 mm) wing lift cylinders, arrow 10 and 11, to lugs, at rear of main frame. Position each cylinder with ports facing towards centre of disc. Fasten barrel end of each cylinder to lug, arrow 12, with one (1) 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) pin. Secure each pin with two (2) 5/16" x 1-3/4" (7.8 mm x 44.4 mm) cotter pins. Do not attach shaft ends at this time.

 **WARNING:** DO NOT STAND UNDER WING WHILE WING IS BEING RAISED OR LOWERED. IF ANY COMPONENT SHOULD FAIL, OR IF HYDRAULIC LEVER SHOULD ACCIDENTALLY BE OPERATED, WING COULD DROP.

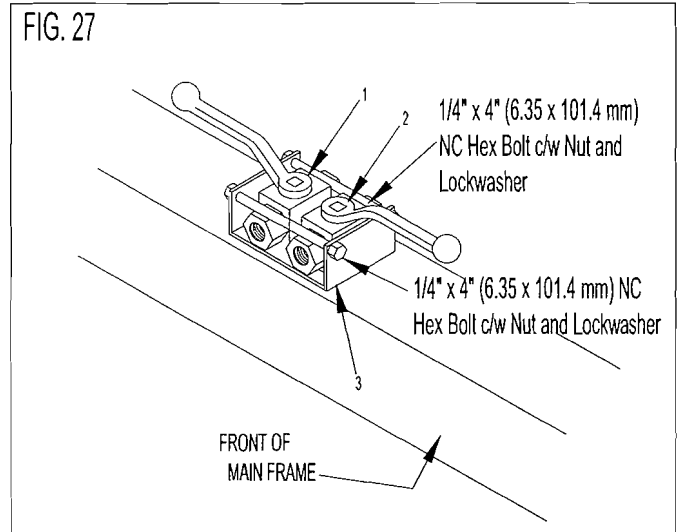
 **CAUTION:** WINGS WILL FREE FALL IF WING CYLINDERS ARE NOT FULL OF OIL CAUSING SERIOUS DAMAGE TO MACHINE OR SERIOUS INJURY OR DEATH TO PERSON(S) NEARBY.

 **CAUTION:** WHEN TRANSPORTING DISC ALWAYS PLACE HYDRAULIC LOCK UP VALVES IN "CLOSED" POSITION. IF HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, THE DISC COULD DROP OR WINGS COULD FALL.

FIG. 26



21. See Fig. 27. Place two (2) hydraulic lockup valves, arrow 1 and 2, in bracket, arrow 3, welded to front centre of main frame. Valves are assembled L.H. and R.H. Position valves as shown so handle moves out when closing valve (as shown) and forward when opening valves. Position valves between front and rear holes in bracket, arrow 3, then installing (2) 1/4" x 4" (6.35mm x 101.6mm) N.C. hex bolts c/w nuts and lockwashers in bracket to hold valves in place.



26. ATTACHING HYDRAULIC HOSES TO ROCKSHAFT CYLINDERS AND WING LIFT CYLINDERS - **NARROW WING FRAME ONLY**. - See Fig. 26.

IMPORTANT: DO NOT USE TEFLON TAPE TO SEAL HYDRAULIC HOSES AND FITTINGS. IF PIECES OF TAPE GET INTO THE HYDRAULIC SYSTEM THEY MAY PLUG SMALL ORIFICES.

NOTE: *To ensure the hydraulic system does not leak, seal fittings and hoses with sealing liquid.*

- a) See Fig. 26. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow in the shaft end port of the R.H. 3" x 24" (76.2 mm x 610 mm) wing rockshaft cylinder. Connect one (1) 3/8" x 393" (9.39 mm x 9982 mm) hydraulic hose to same swivel street elbow. Then run the hose across the wing frame to the centre of the main frame, and to front of hitch.
- b) See Fig. 26. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow in shaft end, port of 3-1/2" x 24" (88.9 mm x 610 mm) L.H. wing rockshaft cylinder. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow, in the barrel end port of the R.H. 3" x 24" (76.2 mm x 610 mm) wing rockshaft cylinder. Connect one (1) 3/8" x 225" (9.39 mm x 5715 mm) hydraulic hose, to swivel elbow, on R.H. cylinder. Next run hose across frame to 1/2" x 90 degree (12.7 mm) swivel elbow, on L.H. cylinder.
- c) See Fig. 26. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow to barrel end port of L.H. 3-1/2" x 24" (88.9 mm x 610 mm) wing rockshaft cylinder. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow, to shaft end port of 4" x 24" (101.6 mm x 610 mm) main frame cylinder. Connect one (1) 3/8" x 185" (9.39 mm x 4699 mm) hydraulic hose, to swivel elbow, on main frame cylinder. Next run same hose across frame to 1/2" x 90 degree (12.7 mm) swivel elbow on L.H. 3-1/2" x 24" (88.9 mm x 610 mm) wing rockshaft cylinder.
- d) See Fig. 26. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow into the barrel end port of 4" x 24" (101.6 mm x 610 mm) main frame cylinder. Connect one (1) 3/8" x 25" (9.39 mm x 635 mm) hydraulic hose, to rear port of L.H. lock-up, with one (1) 3/8" (9.39 mm) male-female swivel. Next connect same hose to 1/2" x 90 degree (12.7 mm) swivel elbow, on front port of main frame cylinder.
- e) See Fig. 26. Connect one (1) 1/4" x 30" (6.35mm x 762mm) hydraulic hose to shaft end port of L.H. 5" x 36" (127mm x 914mm) hydraulic cylinder. Fasten opposite end of same hose to a 3/8" N.P.T. (9.39 mm) swivel tee as shown. Connect one (1) 1/4" x 42" (6.35mm x 1067mm) hydraulic hose to shaft end port of R.H. 5" x 36" (127mm x 914mm) hydraulic cylinder. Fasten opposite end of same hose to same 3/8" N.P.T. (9.39mm) swivel tee as shown.
- f) See Fig. 26. Connect one (1) 3/8" x 54" (9.39mm x 1372mm) hydraulic hose to barrel end port of R.H. 5" x 36" (127 mm x 914 mm) hydraulic cylinder. Fasten opposite end of same hose to a 3/8" N.P.T. (9.39mm) swivel tee as shown. Connect one (1) 3/8" x 42" (9.39mm x 1067mm) hydraulic hose to barrel end port of L.H. 5" x 36" (127mm x 914mm) hydraulic cylinder. Fasten opposite end of same hose to same 3/8" (9.39mm) N.P.T. swivel tee.

- g) See Fig. 26. Install one (1) 3/8" (9.39 mm) male x 3/8" (9.39 mm) female swivel adapter, in to the R.H. lockup valve. Fasten one (1) 3/8" x 106" (9.39 mm x 2692 mm) hydraulic hose, in 3/8" (9.39 mm) tee, arrow B. Fasten opposite end of same hose to the 3/8" (9.39 mm) male x 3/8" (9.39 mm) female swivel adaptor in lockup valve.
 - h) See Fig. 26. Install two (2) 3/8" x 168" (9.39 mm x 4267 mm) hydraulic hoses to the front port of hydraulic lockup valves, and run hoses to front of hitch.
 - i) See Fig. 26. Install one (1) 3/8" x 278" (9.39 mm x 7061 mm) hydraulic hose, from the 3/8" (9.39 mm) swivel tee, arrow A, to front of disc.
23. **SECURING HYDRAULIC HOSES TO FRAME** - See Fig. 26 for machines with narrow wings.
Fasten hoses to frame with one U-shaped hose clamp at each hose hold down point. Each hold down point has a 1/2" (12.7 mm) hex. nut welded to the top of frame. The hold down clips are supplied in two widths, one for two hoses and one for four hoses. Place hose clamp over hoses and fasten clamp to weld-on nut with one 1/2" x 3/4" (12.7 mm x 19.0 mm) bolt c/w lockwasher.

24. **HOW MAIN LIFT ROCKSHAFT HYDRAULIC SYSTEM WORKS** - See Fig. 26.
When raising the disc, oil is pumped into the barrel end port of centre frame cylinder causing the cylinder to extend. Oil is then forced from the shaft end port of same cylinder into the barrel end port of the 3-1/2" x 24" (88.9 mm x 610 mm) cylinder on L.H. side causing wing cylinder to extend. Oil is then forced from the shaft end port of the 3-1/2" x 24" (88.9 mm x 610 mm) cylinder into the piston end port of the 3" x 24" (76.2 mm x 610 mm) wing cylinder on R.H.S. causing wing cylinders to extend. The oil from shaft end port of the 3" x 24" (76.2 mm x 610 mm) cylinder on R.H.S. is returned to the tractor.

When lowering disc, oil flows from tractor to shaft end port of the 3" x 24" (76.2 mm x 610 mm) wing cylinder, causing wing cylinder to contract. Oil forced from piston end port of the 3" x 24" (76.2 mm x 610 mm) wing cylinder flows to shaft end port of L.H. 3-1/2" x 24" (88.9 mm x 610 mm) cylinder, causing cylinder to contract. The oil forced from the piston end port of the L.H. 3-1/2" x 24" (88.9 mm x 610 mm) wing cylinder flows to shaft end port of main frame 4" x 24" (101.6 mm x 610 mm) cylinder causing cylinder to contract. The oil from piston end port of the 4" x 24" (101.6 mm x 610 mm) cylinder is returned to the tractor.

NOTE: Lockup valve must be open to allow oil to flow to and from lift cylinders.

All cylinders extend and contract at the same rate because the amount of oil flowing between the shaft end ports and the piston end ports is equal in volume. For example, the 4" x 24" (101.6 mm x 610 mm) main frame cylinder has a 2" (50.8 mm) diameter piston shaft which displaces enough oil from the shaft side to fully extend the 3-1/2" x 24" (88.9 mm x 610 mm) L.H. wing cylinder. The same method is used between the 3-1/2" x 24" (88.9 mm x 610 mm) L.H. wing cylinder and the 3" x 24" (76.2 mm x 610 mm) R.H. wing cylinder.

Each lift (rockshaft) cylinder contains a by-pass to allow oil to flow past piston when each cylinder is fully extended. If all cylinders are not fully extended when disc is raised, continue to pump oil into lift cylinders until all cylinders are fully extended.

25. **NOTE:** *Before filling lift cylinders with oil, remove clevis pin from shaft end of each cylinder so that the cylinders may be extended and contracted WITHOUT ACTUATING rockshafts. Support cylinders so shafts pass over rockshaft arms and frame components.*

See Fig. 26. To fill rockshaft cylinders with oil remove depth control stops to allow cylinders to work full length of stroke. Next, pump oil into the cylinders working shafts in and out. After all cylinders have been completely filled with oil, synchronize cylinders by fully extending them. After the first cylinder is fully extended continue to hold hydraulic lever until the other two (2) cylinders are all fully extended. Attach shaft end of each cylinder to rockshaft arm with one (1) 1-1/4" x 4-3/4" (31.7 mm x 121 mm) pin. Secure each pin with two (2) 5/16" x 1-3/4" (7.57 mm x 44.4 mm) cotter pins.

26. **NOTE:** *Before filling wing cylinders with oil, support cylinder so shaft passes over cylinder lug on wing.*

See Fig. 26. Pump oil into all 5" x 36" (127 mm x 914 mm) wing cylinders. Extend and contract cylinder shafts until cylinders are completely filled with oil. After cylinders are full of oil, fully extend all of them. Next, attach shaft end of each cylinder to a slotted hole in lug on wing frame with one (1) 1-1/4" x 4-3/4" (31.7 mm x 121 mm) pin. Secure each pin with two (2) 5/16" x 1-3/4" (7.87 mm x 44.4 mm) cotter pins.



CAUTION: HYDRAULIC CYLINDERS CAN BE SERIOUSLY DAMAGED IF CLEVIS OF SHAFT STRIKES ROCKSHAFT ARM OR WING CYLINDER LUG AS CYLINDERS ARE BEING CYCLED TO FILL THEM WITH OIL.



CAUTION: IF HYDRAULIC CYLINDER SHAFTS ARE UNPINNED AND CYCLED TO FILL THEM WITH OIL, THEY CAN BE SERIOUSLY DAMAGED IF CLEVIS OF SHAFT STRIKES ROCKSHAFT ARM OR WING CYLINDER LUG.



CAUTION: DO NOT DISCONNECT HYDRAULICALLY OPERATING COMPONENTS WHEN THERE IS PRESSURE WITHIN THOSE COMPONENTS. HYDRAULIC COMPONENTS UNDER PRESSURE MAY CAUSE PARTS AND HYDRAULIC FLUID TO FLY OUT AT A HIGH VELOCITY WHICH COULD CAUSE SERIOUS INJURY.



CAUTION: HYDRAULIC OIL ESCAPING UNDER PRESSURE HAS SUFFICIENT FORCE TO CAUSE SERIOUS INJURY. IF INJURED BY ESCAPING FLUID, OBTAIN MEDICAL TREATMENT IMMEDIATELY.

CHECK HYDRAULIC HOSES PERIODICALLY FOR SIGNS OF RUPTURE AND LEAKS. USE A CARD BOARD AS A BACKSTOP TO CHECK FOR ESCAPING HIGH PRESSURE OR HOT FLUID.



CAUTION: WINGS WILL FREE FALL IF WING CYLINDERS ARE NOT FULL OF OIL, CAUSING SERIOUS DAMAGE.



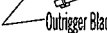
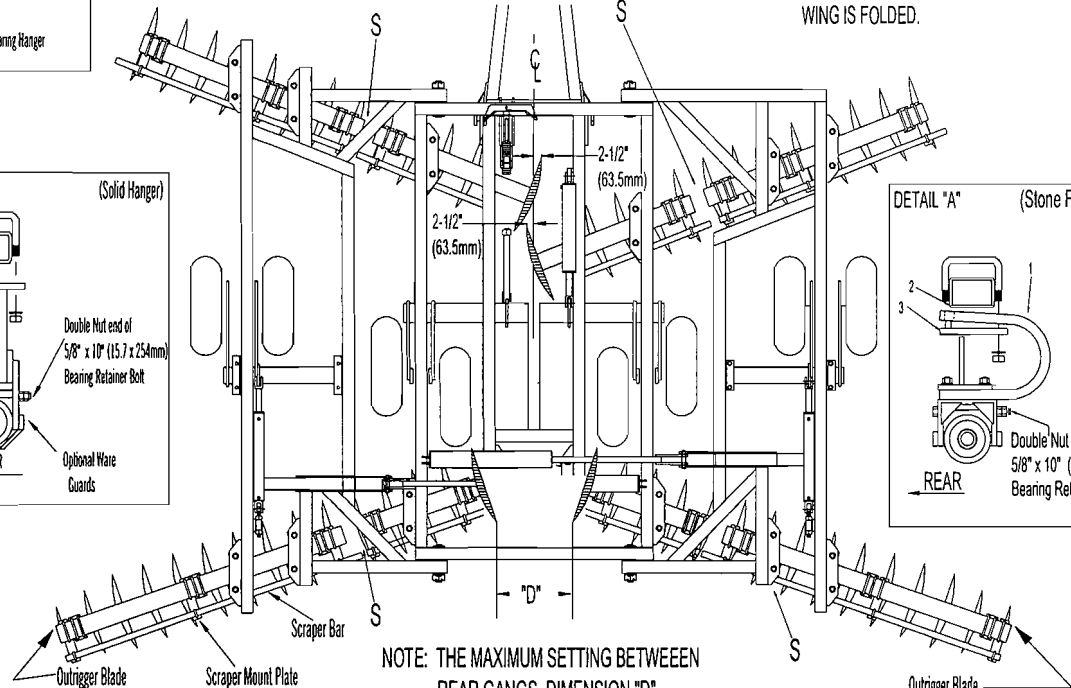
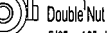
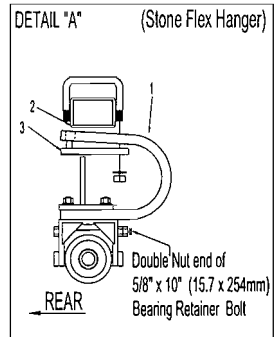
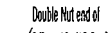
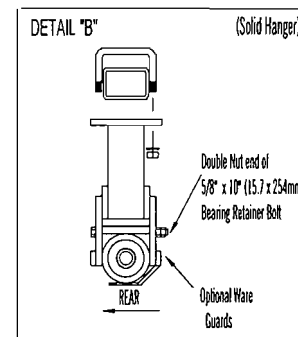
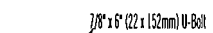
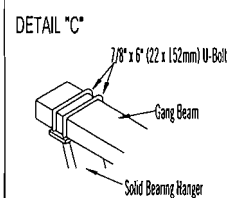
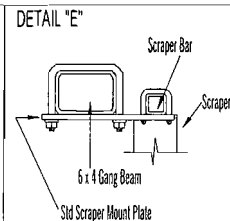
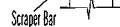
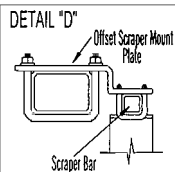
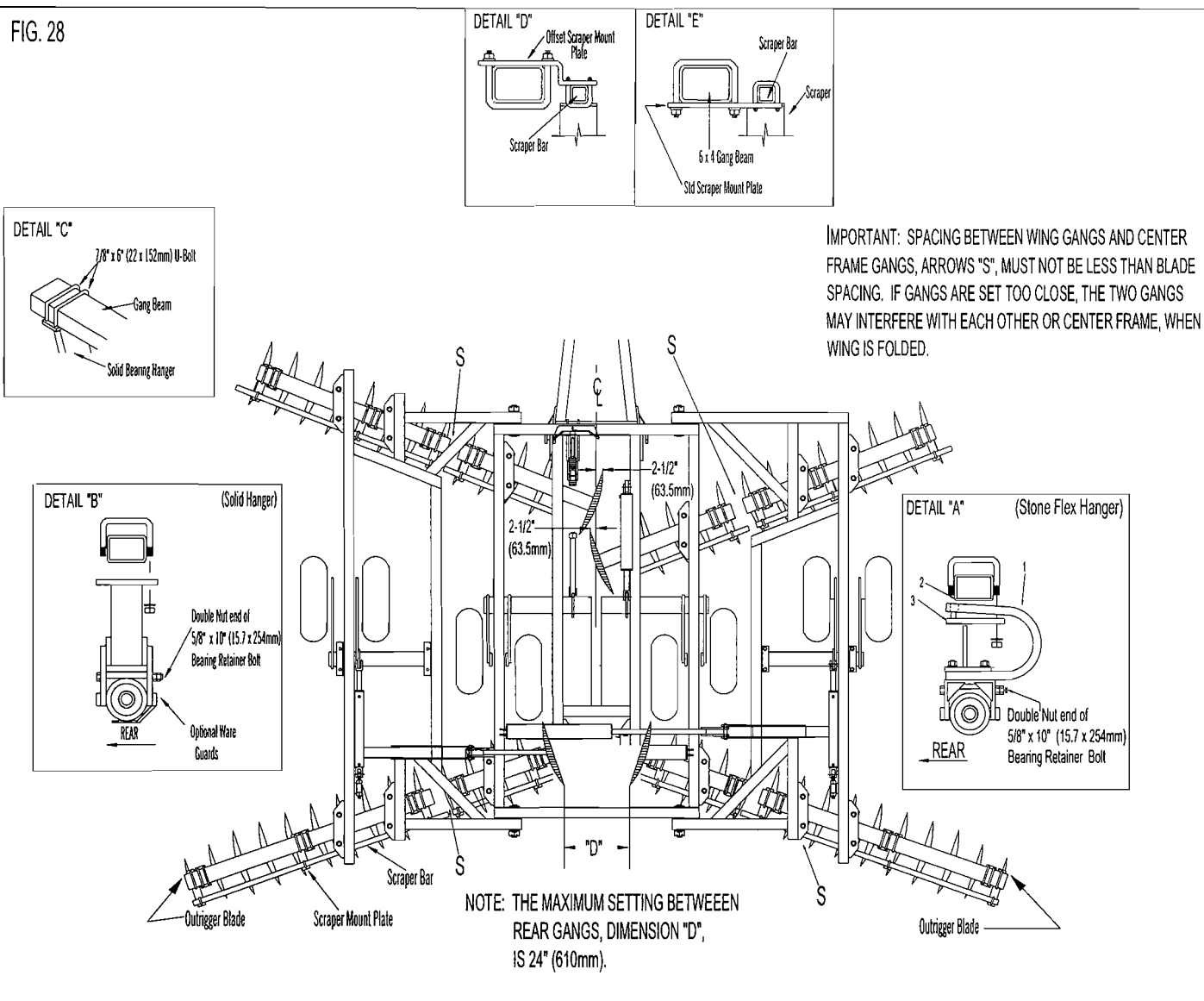
CAUTION: TO ASSEMBLE BALANCE OF DISC, EXTEND MAIN LIFT CYLINDERS RAISING FRAME. BE SURE MAIN LIFT CYLINDERS ARE COMPLETELY FILLED WITH OIL. THEN PLACE ADEQUATE SUPPORT UNDER MAIN FRAME AND EACH WING FRAMES.

DO NOT USE LOCK OUT VALVE AS SAFETY DEVICE TO PREVENT FRAME FROM FALLING. IF ANY HYDRAULIC COMPONENT FAILED DISC COULD DROP CAUSING SERIOUS INJURY OR DEATH TO THOSE NEARBY.



WARNING: DO NOT STAND UNDER WINGS WHILE WINGS ARE BEING RAISED OR LOWERED. IF ANY COMPONENTS OF HYDRAULIC SYSTEM SHOULD FAIL OR IF HYDRAULIC LEVER SHOULD ACCIDENTALLY BE OPERATED, WINGS COULD DROP CAUSING SERIOUS INJURY OR DEATH.

FIG. 28



NOTE: THE MAXIMUM SETTING BETWEEN
REAR GANGS, DIMENSION "D",
IS 24" (610mm).

IMPORTANT: SPACING BETWEEN WING GANGS AND CENTER FRAME GANGS, ARROWS "S", MUST NOT BE LESS THAN BLADE SPACING. IF GANGS ARE SET TOO CLOSE, THE TWO GANGS MAY INTERFERE WITH EACH OTHER OR CENTER FRAME, WHEN WING IS FOLDED.

27. ATTACHING GANG ASSEMBLIES - See Fig. 28.

NOTE: Find gang pattern for your disc on pages 37 to 43.

NOTE: Remove scraper assemblies and bundling tie bars from gang assemblies. The scraper assembly that is bundled with each gang will be assembled together on the disc. Be sure each gang and its scraper assembly is kept together. The 5/8" x 2" (15.7mm x 50.8mm) U-bolts used to bundle scraper assemblies must be saved to assemble scraper bar to gang beam later.

a) USING GANG PATTERN FOR YOUR DISC - Identify the front and rear gangs. Next, determine which gangs are for R.H.S. and which are for L.H.S. For solid hangers L.H and R.H. is determined by the 5/8" x 10" (15.7mm x 254mm) bearing retainer bolt. When the blades are correctly orientated the double nut end of the 5/8" x 10" (15.7mm x 254mm) bolt will face the rear of the disc, see Detail B. If your disc is equipped with stone flex hangers, L.H. and R.H. can also be determined by the opening of the "C" shank. When blades are correctly orientated the open end of "C" shank will face the rear of disc, see Detail A.

b) REAR GANGS - Roll rear gang assemblies in place under rear gang beams. The gang assemblies with outrigger blades (small diameter blades) must be positioned at the outside. See Fig. 28 for the direction rear gangs face.

Attach bearing hangers to gang beams with (2) two 7/8" x 6" (22.0mm x 152.0mm) U-bolts per bearing hanger. Details "B" and "C" illustrates how to attach solid hangers. Leave U-bolt loose. If disc is equipped with optional stone flex bearing hangers, see Step "D" to attach hangers.

c) FRONT GANGS - Roll front gang assemblies in place under front gang beams. See Fig. 28 for the direction the front gangs face.

Attach bearing hangers to gang beams with (2) two 7/8" x 6" (22.0mm x 152.0mm) U-bolts per bearing hanger. Details "B" and "C" illustrates how to attach solid hangers. Leave U-bolts loose. If disc is equipped with optional stone flex bearing hangers, see Step "C" to attach hangers.

d) See Detail "A", Fig. 28. If disc is equipped with optional stone flex bearing hangers, fasten each spring hanger assembly, arrow 1, to bottom of gang beam, arrow 2, with one backing plate, arrow 3, and 2 U-bolts. Be sure dowel pin of backing plate, arrow 3, is installed in slot of spring shank.

e) See Fig. 28. Set front centre frame gangs, so that the leading edge of inside blades, arrow 4, are approximately 2-1/2" (63.5 mm) past centre of disc frame - centre line of centre frame is shown in Fig. 28.

f) See Fig. 28. Set rear centre frame gangs, arrow 5, so that the distance between the rear edge of the two inside blades, dimension "D" is equal to 2" (50.8 mm) less than diameter of blade to a maximum of 24" (610mm). For example, if your disc is equipped with 26" (660 mm) diameter blades, dimension "D" would be set at 24"(610 mm). If your disc is equipped with 28" (711mm) or 30" (762mm) diameter blades, Dimension "D" would be set at a maximum of 26" (660mm). Be sure rear gangs are centered.

g) See Fig. 28. Adjust blade to blade distance between individual gang assemblies. This distance should be the same as the blade spacing of your disc.

IMPORTANT: SPACE BETWEEN WING GANGS AND CENTRE FRAME GANGS **MUST NOT** BE LESS THAN BLADE SPACING. IF GANGS ARE SET TOO CLOSE, THE TWO GANGS MAY INTERFERE WITH EACH OTHER WHEN WINGS ARE FOLDED.

h) Before tightening bearing hanger U-bolts, check each bearing hanger to make sure hanger is sitting square under gang beam. Also ensure hangers are not turned to one side. Next tighten U-bolts to 430 ft. lbs. (583.0 N m).

IMPORTANT: IF BEARING HANGERS ARE NOT SITTING SQUARE BEFORE TIGHTENING U-BOLTS, THRUST WILL BE BUILT INTO THE BEARINGS AND THE LIFE OF THE BEARING WILL BE SHORTENED

28. ATTACHING SCRAPER ASSEMBLIES - See Fig. 28.

NOTE: Find gang pattern for your disc on pages 37 to 43.

a) Identify scraper assembly for each gang. As indicated in Section 32 above, the gangs were bundled with their corresponding scraper assembly. Scraper assemblies are assembled L.H. and R.H. must be installed on appropriate side.

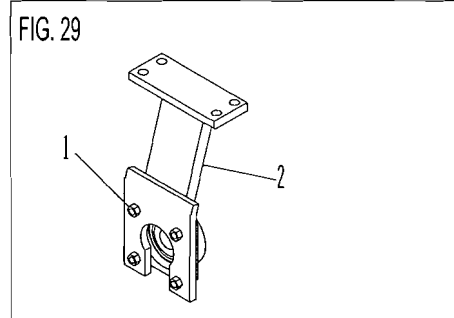
NOTE: Some gangs use a 90 degree scraper. Be sure the scraper assemblies with 90 degree scrapers are installed on the correct gangs.

b) See Fig. 28. Position each scraper assembly on REAR side of its gang with scraper placed against concave side of blades. Fasten scraper assembly to gang beam with ONE (1) scraper mount plate for each bearing hanger in the gang. Position outer scraper mount plates as close as possible to the end of the scraper bar. Position the inner scraper mount plate(s) close to a bearing hanger. Locate standard scraper mount plate on BOTTOM side of gang beam and secure with (1) 3/4" x 6" (19.0mm x 152.4mm) U-Bolt c/w nuts and lockwashers, as shown in Detail "E". Place scraper bar assembly on TOP of scraper mount plate(s) and secure scraper bar to plate(s) with one (1) 5/8" x 2" (15.7mm x 50.8mm) U-Bolts c/w nuts and lockwashers.

NOTE: In some cases the standard scraper mount plate, shown in Detail "E", can not be installed between frame and a bearing hanger. In these instances an offset scraper mount is provided. This mount plate is placed on top of the gang beam, as shown in Detail "D", allowing clearance for installation. All Models are supplied with six (6) offset mounts. If they are not used for tight locations, use them in normal locations.

IMPORTANT: IF BEARING HANGERS ARE NOT SITTING SQUARE BEFORE TIGHTENING U-BOLTS, THRUST WILL BE BUILT INTO THE BEARINGS AND THE LIFE OF THE BEARING WILL BE SHORTENED.

29. See Fig. 29. For models equipped with 410 Series Bearing only. Loosen all the bolts, arrow 1, which fasten the bearings to the hangers, arrow 2. Then turn the disc blades to allow the bearings to align themselves. Next, tighten all the bolts. This will ensure proper bearing alignment, increasing bearing life.



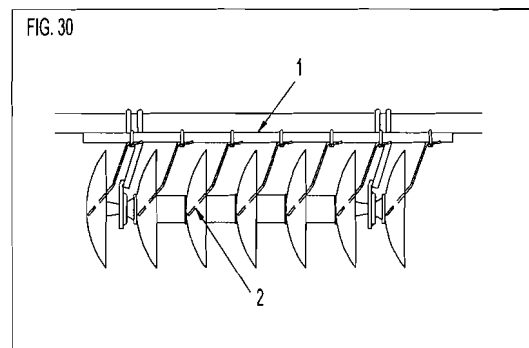
30. **IMPORTANT:** WHEN RAISING WINGS FOR TRANSPORT FOR FIRST TIME AFTER ADJUSTING GANGS, RAISE WINGS SLOWLY MAKING SURE WING GANGS CLEAR CENTRE FRAME GANGS.

31. See Fig. 30. Adjust scraper bar, arrow 1, and scrapers, arrow 2, of each gang so that each scraper blade is in contact with disc blade.

IMPORTANT: DISC WILL REQUIRE LESS HORSE POWER TO PULL IF SCRAPERS ARE ADJUSTED PROPERLY.

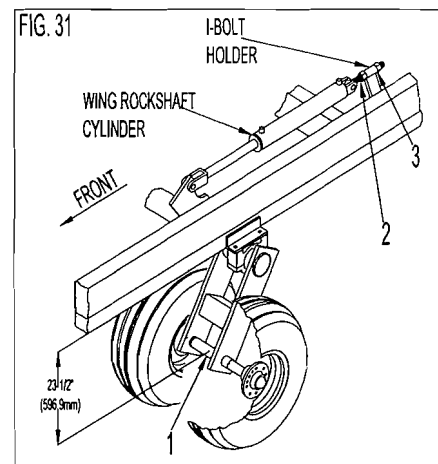


CAUTION: WHEN ATTACHING GANG ASSEMBLIES, WEAR PROTECTIVE GLOVES TO HELP PREVENT INJURY FROM CUTTING EDGES OF BLADES.



32. See Fig. 31. Level frames with main frame as follows:

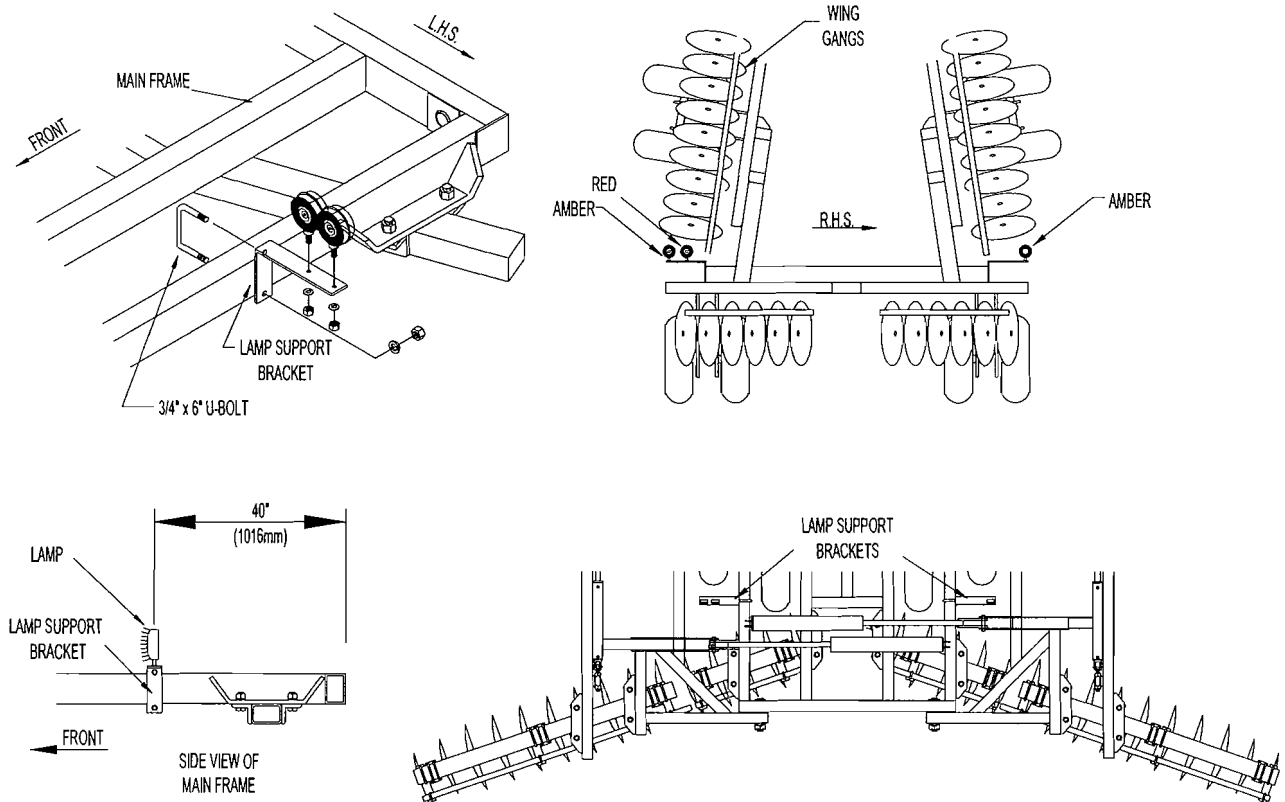
- Raise disc by extending rockshaft cylinders, be sure wing rockshaft cylinders are fully extended.
- Check position of the spindle mounting tube, arrow 1, (welded to bottom of rockshaft wheel leg). This distance should be 23-1/2" (596.9mm) from the bottom of wing frame to top of spindle mounting tube.
- If spindle mounting tube location is not correct, adjust length of wing cylinder I-Bolt, arrow 2. Extending I-Bolt will move spindle mount tube further away from bottom of frame while contracting I-Bolt will move it closer.
- After adjustments are complete, lock I-Bolt by tightening rear nut, arrow 3, against I-Bolt holder.



NOTE: The above wheel leg settings are initial settings only. If wing gangs do not cut at same depth as main frame gangs, further wing cylinder adjustment will be required.

IMPORTANT: BE SURE AXIS OF CLEVIS PIN IS HORIZONTAL AND CYLINDER PORTS ARE FACING UP. IF CYLINDER AND I-BOLT ARE NOT POSITIONED PROPERLY, CYLINDER WILL NOT BE FREE TO PIVOT WHEN ACTIVATED CAUSING SERIOUS DAMAGE.

FIG. 32



33. WARNING LIGHT KIT MOUNT INSTRUCTIONS - OPTIONAL - See Fig. 32



WARNING: DO NOT STAND UNDER FOLDED WINGS WHEN WORKING ON DISC. IF HYDRAULIC SYSTEM FAILED OR IF HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, WINGS MAY FALL RESULTING IN SERIOUS INJURY OR DEATH TO PERSON(S) NEAR DISC.

- With disc folded, install one lamp support bracket on each side of main frame. Locate each bracket 40" (1016mm) from rear of main frame. Position brackets as shown in Fig. 32. Secure each bracket with one (1) 3/4" x 6" (19.0mm x 152mm) U-bolt c/w nuts and lockwashers. Tighten U-bolts.
- Fasten one (1) amber lamp and one (1) red lamp to the L.H. lamp support bracket. Position amber and red lamps so they face the rear with the amber lamp on the outside. Install lamps through 3/4" (19.1mm) holes in lamp support bracket. Secure with nuts.
- Fasten one (1) amber lamp to outer 3/4" (19.1mm) hole in R.H. lamp support bracket. Position so amber lamp faces rear. Install lamp through 3/4" hole in mount plate. Secure with nuts.

IMPORTANT: Paragraphs "b" and "c" and Fig. 32 describe and show lamp position for North American public roads. For other countries such as Australia, check local laws and regulations for required warning lamp mounting positions



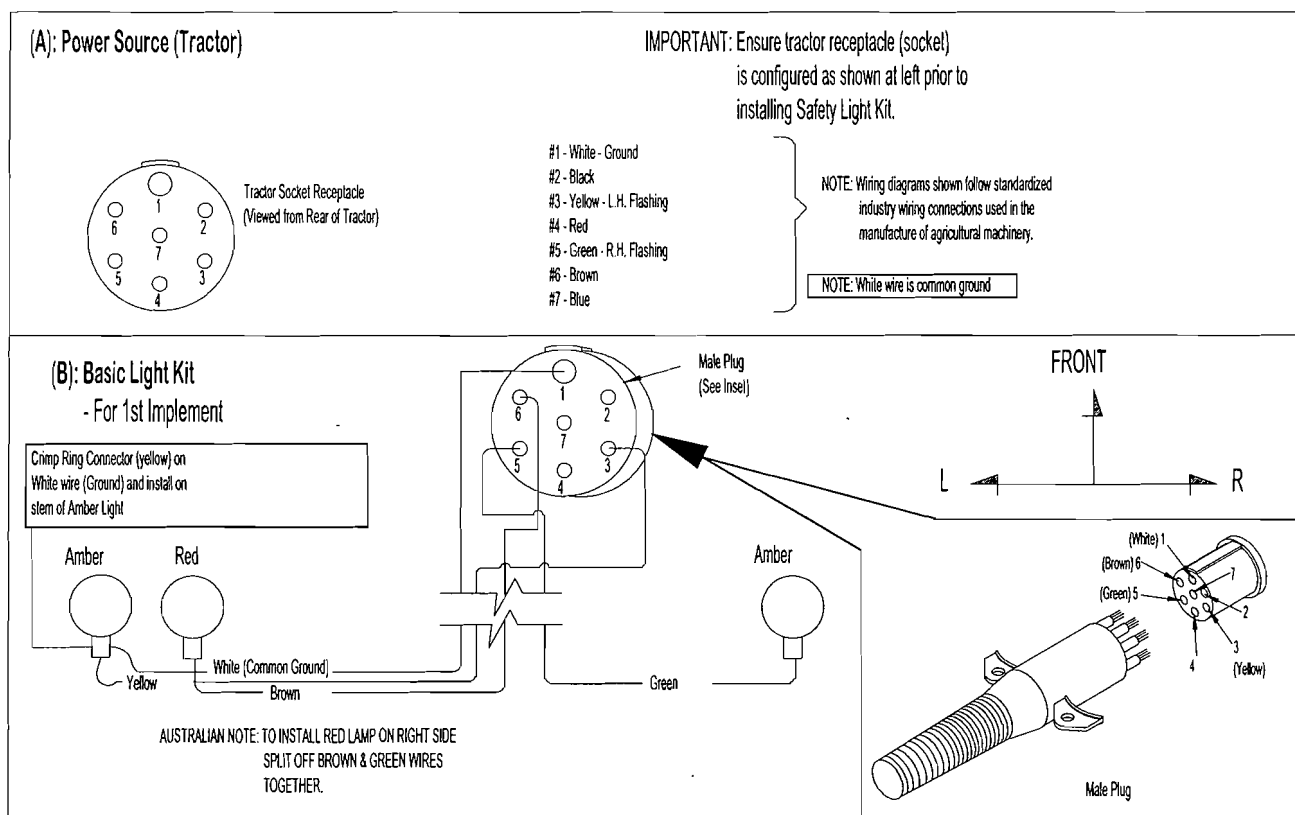
CAUTION: WHEN TRANSPORTING DISC OVER PUBLIC ROADS, USE THE SMV EMBLEM AND WARNING LIGHT FOR PROTECTION OF TRACTOR AND OTHER MOTOR VEHICLE OPERATORS. CHECK LOCAL LAWS FOR WIDTH AND HEIGHT MAXIMUMS.

WARNING LIGHT INSTALLATION CONTINUED:

D) INSTALL ELECTRICAL WIRING AS FOLLOWS:

- d1) See Fig. 33- Run four (4) wire cables (brown, white, yellow, and green) from tractor socket receptacle to rear of disc. Split off green wire and run it to the R.H. amber lamp. Next, run white wire to amber lamp on L.H. side, then run yellow wire to L.H. amber lamp and run brown wire to red lamp on L.H. side. Strip wires and fasten ring connector to each wire. Install ring connector of each wire to threaded stem of each lamp as shown in Fig. 33.
- d2) Next, disassemble male plug, then insert all wires through spring end of male plug. Strip wires and insert each wire into specific terminal of outer half of male plug. Use Fig. 33 to match wire color to proper terminal number. Reassemble both halves of male plug.
- d3) Insert male plug into tractor's socket receptacle. Activate warning light switch and check if all lamps are flashing.
- d4) IMPORTANT: Run wires along frame member. Do not run wires across open spaces. Wires that are run across open space will be damaged during discing operations or by people working on the disc.
- d5) Install a 1/2" I.D. x 9' (12.7mm x 2.74m) long plastic loom over wires that lead from male plug shown in Fig. 33. The plastic loom is installed by pushing the wires into the opening that runs the length of the loom.

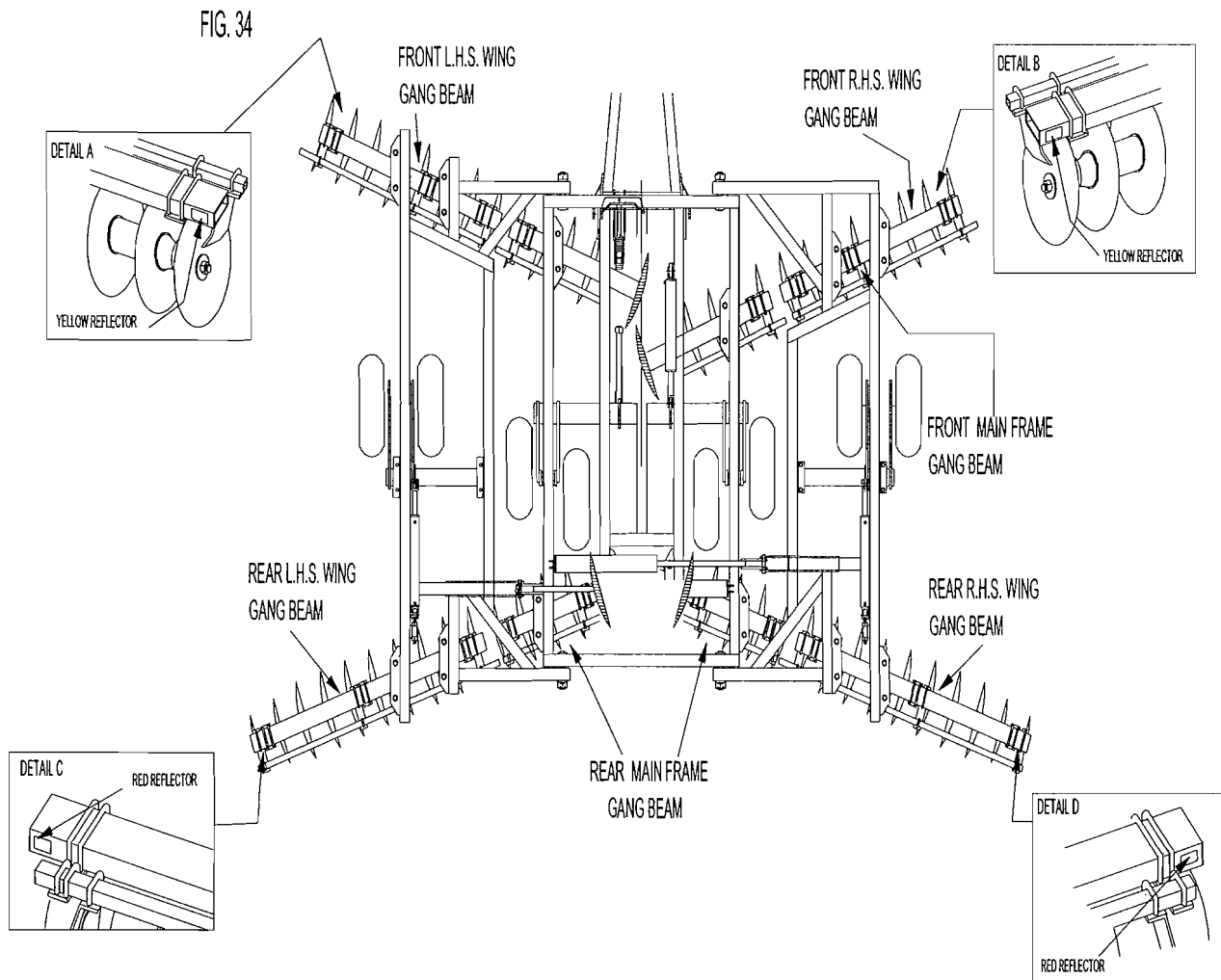
FIG. 33



COMPONENTS: BASIC LIGHT KIT

- 1 - 7 pin male plug c/w 55ft(13.7m) 14/4 rib wire
- 3 - Nylon connectors (closed end)
- 2 - Lamps - amber both sides
- 1 - Lamp - red one side

- 10 - Cable ties
- 1 - Ground Connector - ring type (7/16" - 1/2")
- 1 - 8' (24.4m) 1/2" plastic loom



38. REFLECTOR DECAL INSTALLATION - See Fig. 34

NOTE: Before installing decals, clean the area they will be placed on.

- a) Place one 2" x 9" (50.8 mm x 228.6 mm) red reflector decal on rear side of each rear gang beam. Locate decals approximately 1" (25.4 mm) from end of gang beam. See detail "C" and "D".
- b) Place one 2" x 9" (50.8 mm x 228.6 mm) yellow reflector decal on front side of each front gang beam. Locate decals approximately 1" (25.4mm) from end of gang beam. See detail "A" and "B".

GANG BEAM CHART

9" (230 mm) SPACING

DISC	L.H. & R.H. FRONT CENTRE FRAME BEAM	L.H. & R.H. REAR CENTRE FRAME BEAM	L.H. & R.H. FRONT WING FRAME BEAM	L.H. & R.H. REAR WING FRAME BEAM
50B Size	67" (1702 mm)	56" (1422 mm)	51" (1295 mm)	65" (1651 mm)
54B Size	67" (1702 mm)	56" (1422 mm)	60" (1524 mm)	75" (1905 mm)
58B Size	67" (1702 mm)	56" (1422 mm)	60" (1524 mm)	84" (2134 mm)
62B Size	67" (1702 mm)	56" (1422 mm)	70" (1778 mm)	94" (2388 mm)
66B Size	67" (1702 mm)	56" (1422 mm)	80" (2032 mm)	102" (2591 mm)

10-1/2" (267 mm) SPACING

DISC	L.H. & R.H. FRONT CENTRE FRAME BEAM	L.H. & R.H. REAR CENTRE FRAME BEAM	L.H. & R.H. FRONT WING FRAME BEAM	L.H. & R.H. REAR WING FRAME BEAM
46B Size	67" (1702 mm)	56" (1422 mm)	60" (1524 mm)	72" (1829 mm)
50B Size	67" (1702 mm)	56" (1422 mm)	60" (1524 mm)	84" (2134 mm)
54B Size	67" (1702 mm)	56" (1422 mm)	70" (1778 mm)	94" (2388 mm)
58B Size	67" (1702 mm)	56" (1422 mm)	80" (2032 mm)	106" (2692 mm)

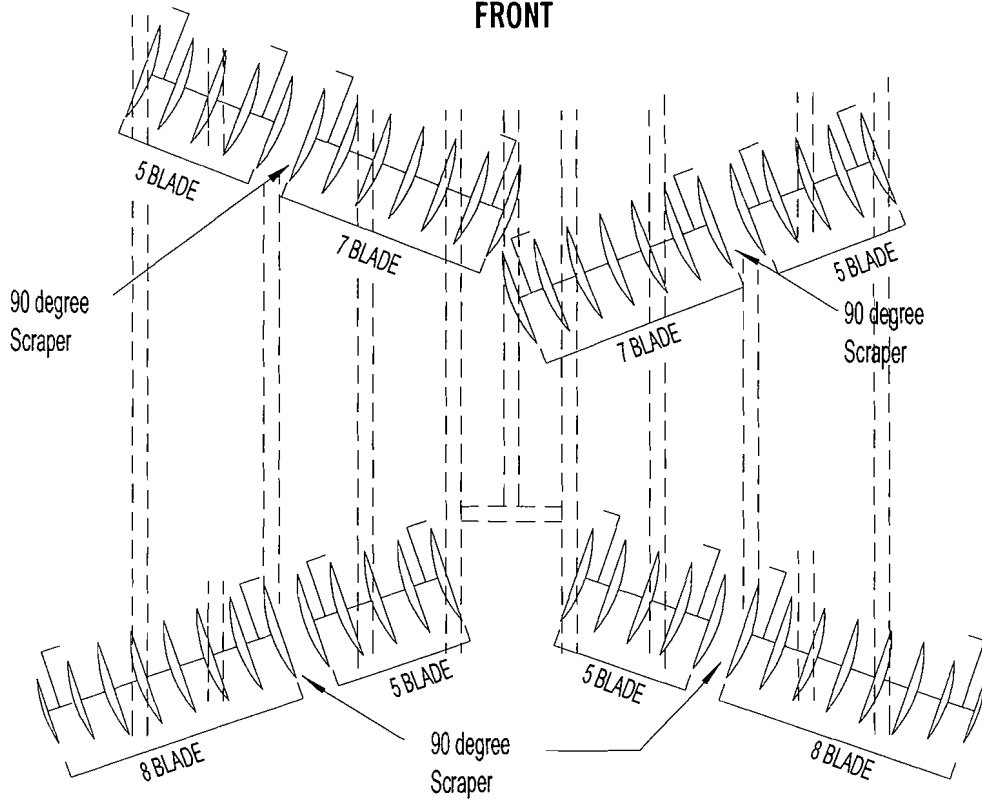
12" (305 mm) SPACING

DISC	L.H. & R.H. FRONT CENTRE FRAME BEAM	L.H. & R.H. REAR CENTRE FRAME BEAM	L.H. & R.H. FRONT WING FRAME BEAM	L.H. & R.H. REAR WING FRAME BEAM
42B Size	67" (1702 mm)	56" (1422 mm)	63" (1600 mm)	77" (1956 mm)
46B Size	67" (1702 mm)	56" (1422 mm)	63" (1600 mm)	90" (2286 mm)
50B Size	67" (1702 mm)	56" (1422 mm)	76" (1930 mm)	102" (2591 mm)

DISC GANG PATTERN - 9" (230 mm) SPACING

50 BLADE

FRONT



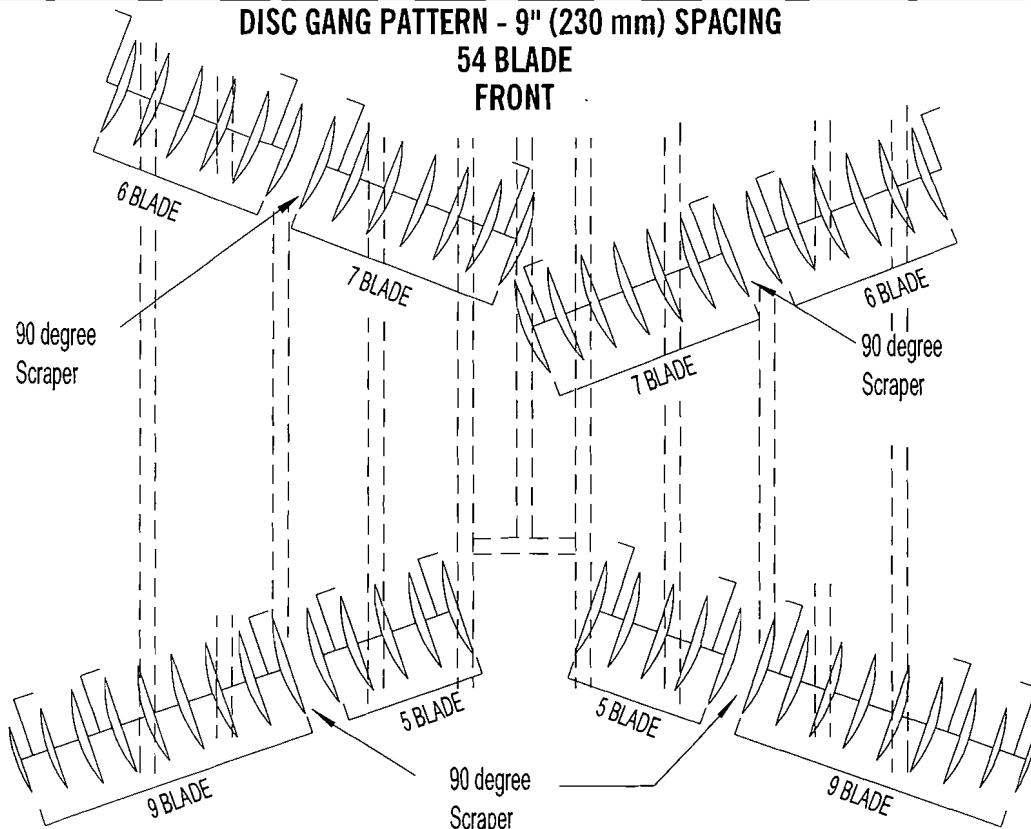
APPROX. WIDTH
19-1/2 ft. (5.9m)

16 BEARINGS

DISC GANG PATTERN - 9" (230 mm) SPACING

54 BLADE

FRONT



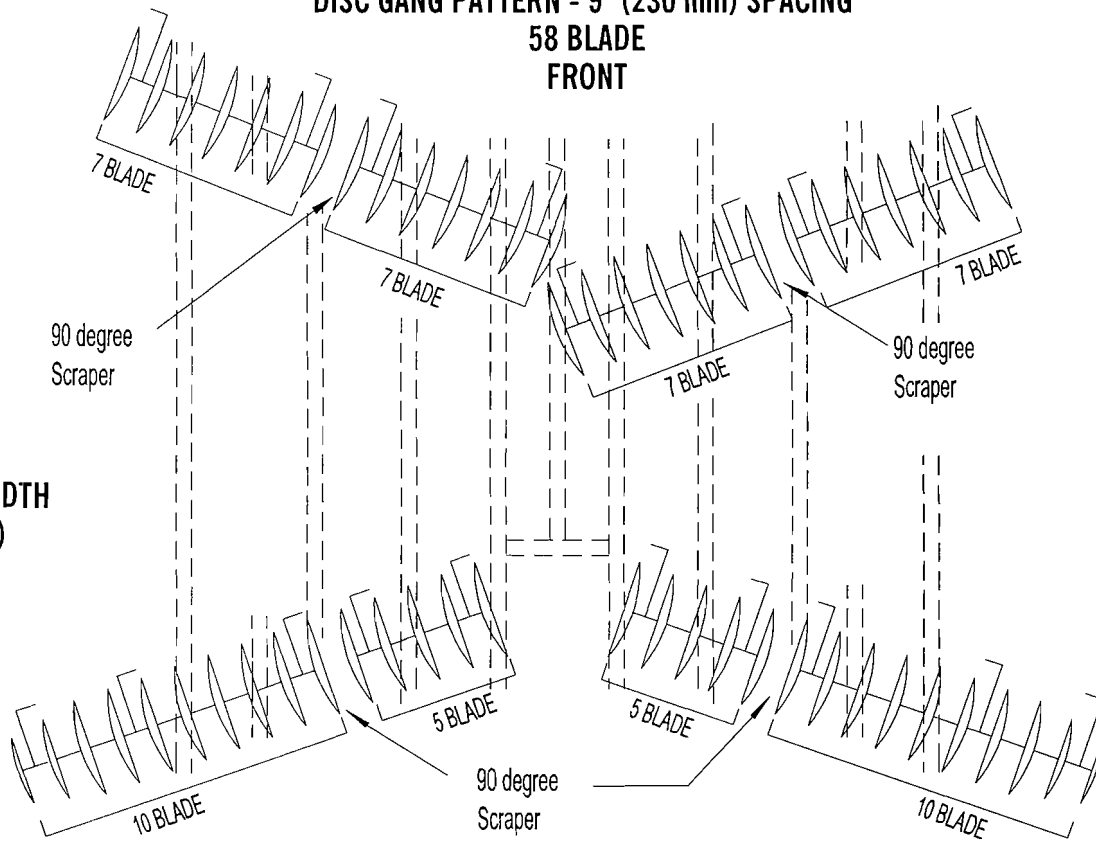
APPROX. WIDTH
21 ft. (6.4 m)

18 BEARINGS

DISC GANG PATTERN - 9" (230 mm) SPACING

**58 BLADE
FRONT**

**APPROX. WIDTH
22 ft. (6.7m)**

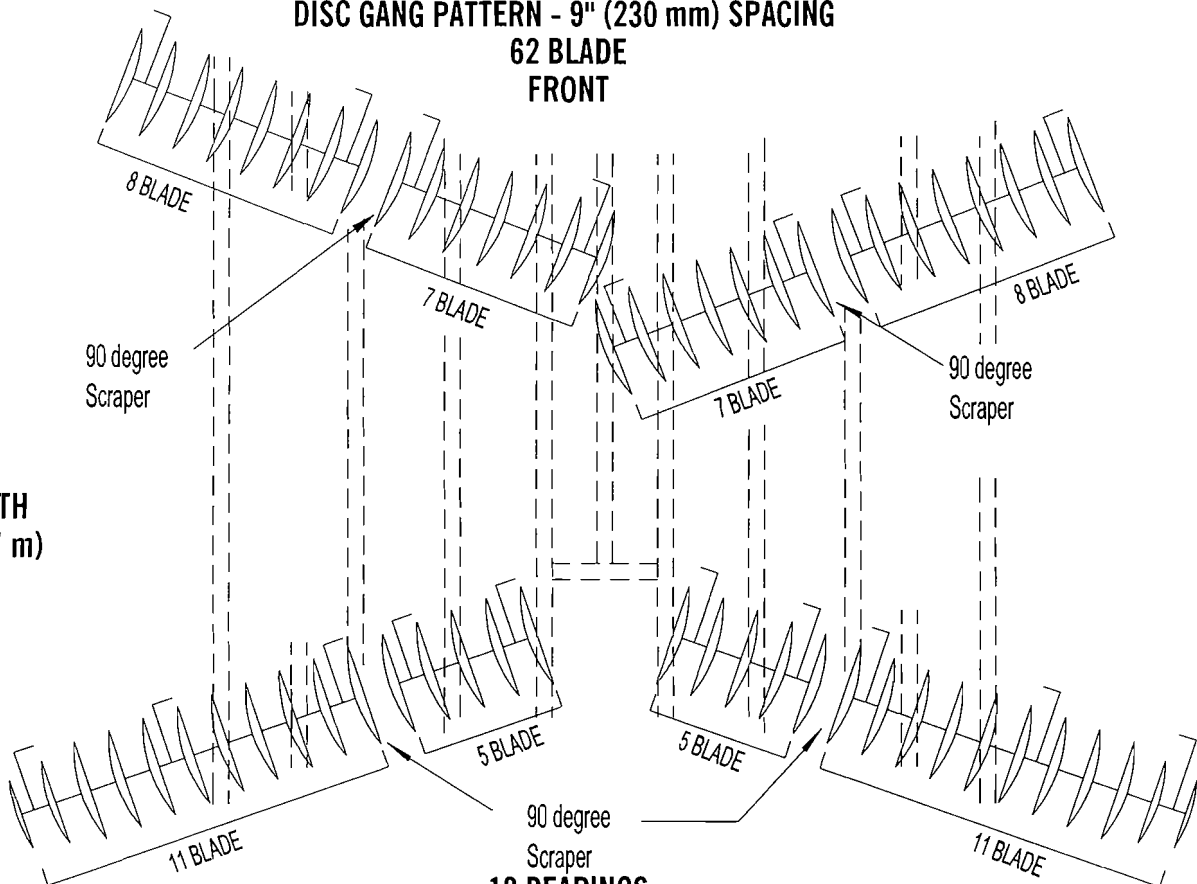


18 BEARINGS

DISC GANG PATTERN - 9" (230 mm) SPACING

**62 BLADE
FRONT**

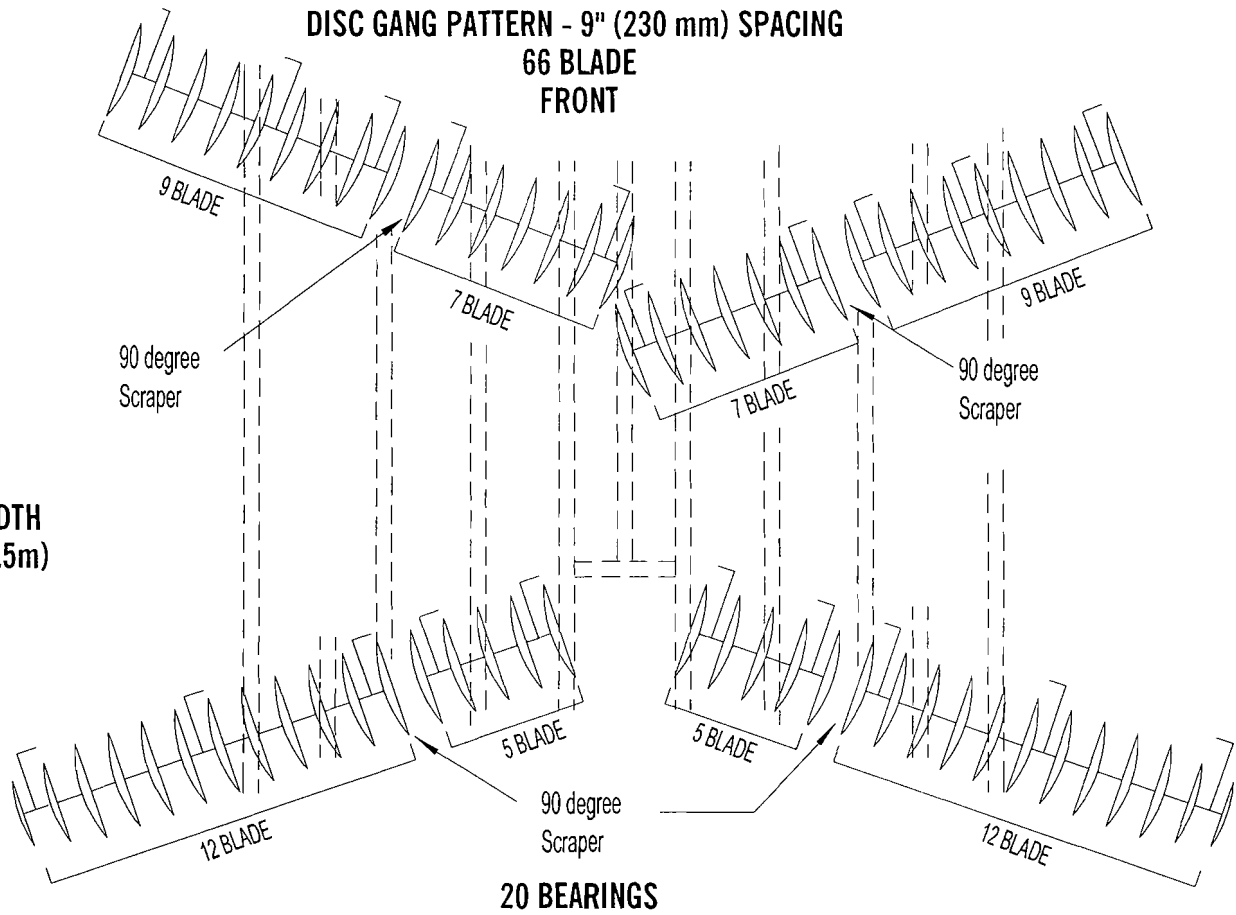
**APPROX. WIDTH
23-1/2 ft. (6.7 m)**



18 BEARINGS

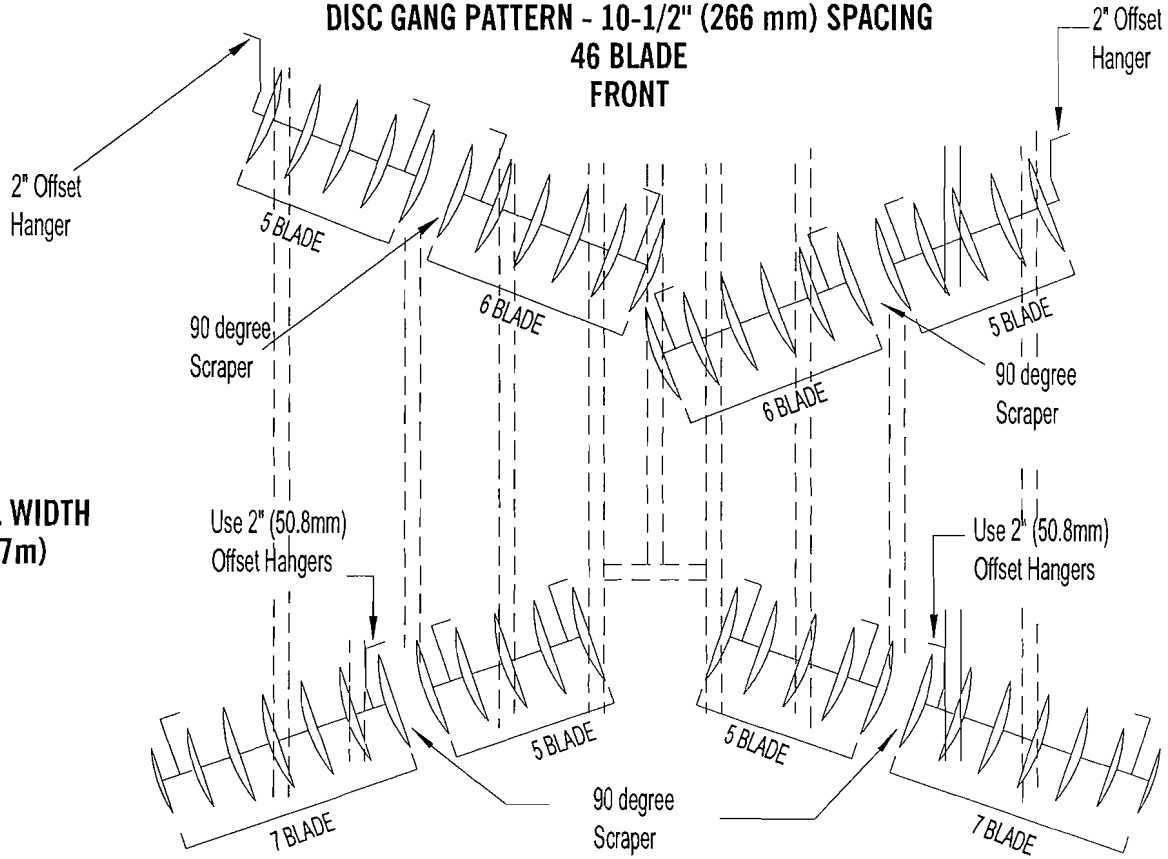
**DISC GANG PATTERN - 9" (230 mm) SPACING
66 BLADE
FRONT**

**APPROX. WIDTH
24-1/2 ft. (7.5m)**



DISC GANG PATTERN - 10-1/2" (266 mm) SPACING

46 BLADE FRONT

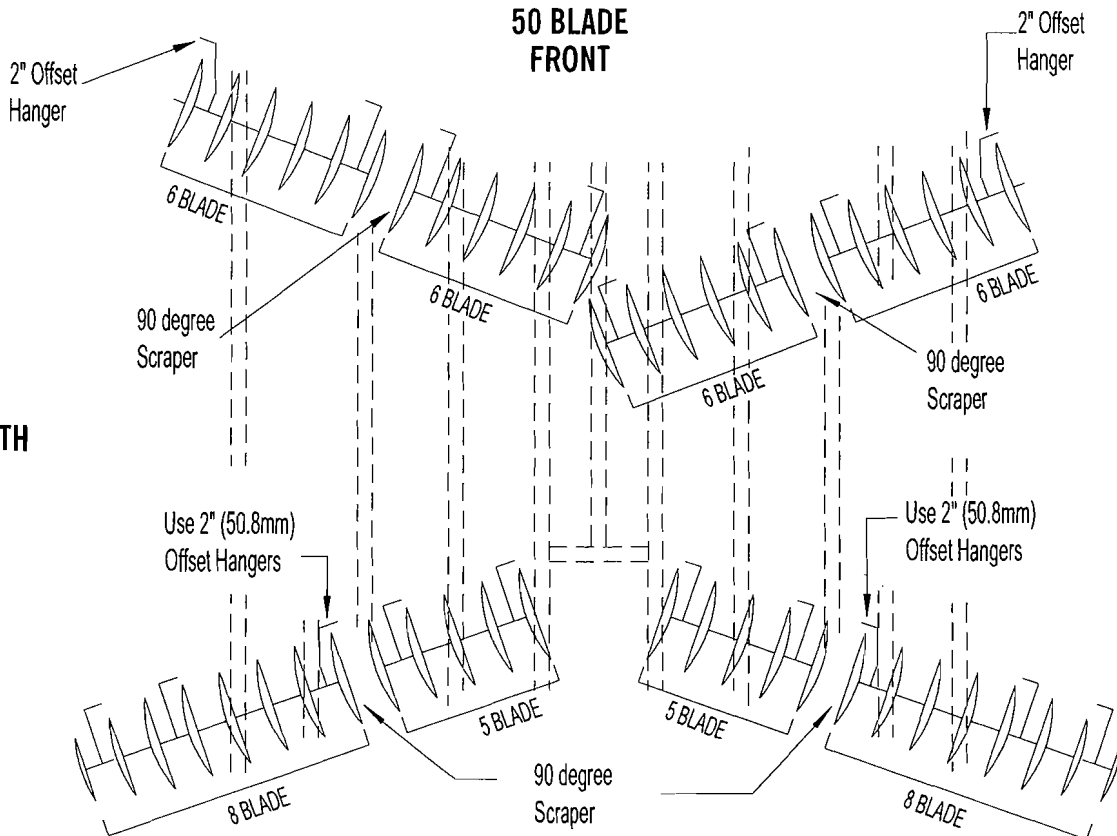


**APPROX. WIDTH
22 ft. (6.7m)**

16 BEARINGS

DISC GANG PATTERN - 10-1/2" (267 mm) SPACING

50 BLADE FRONT



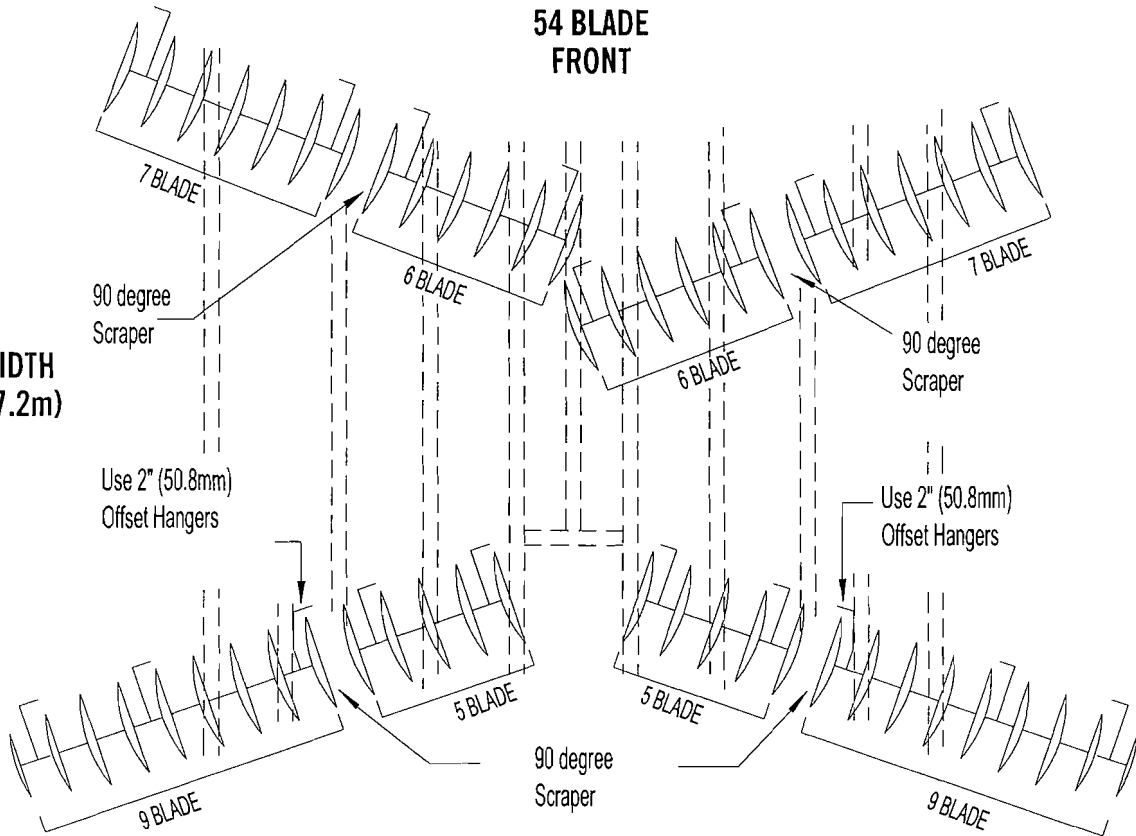
**APPROX. WIDTH
22 ft. (6.7m)**

18 BEARINGS

DISC GANG PATTERN - 10-1/2" (266 mm) SPACING

**54 BLADE
FRONT**

**APPROX. WIDTH
23-1/2 ft. (7.2m)**

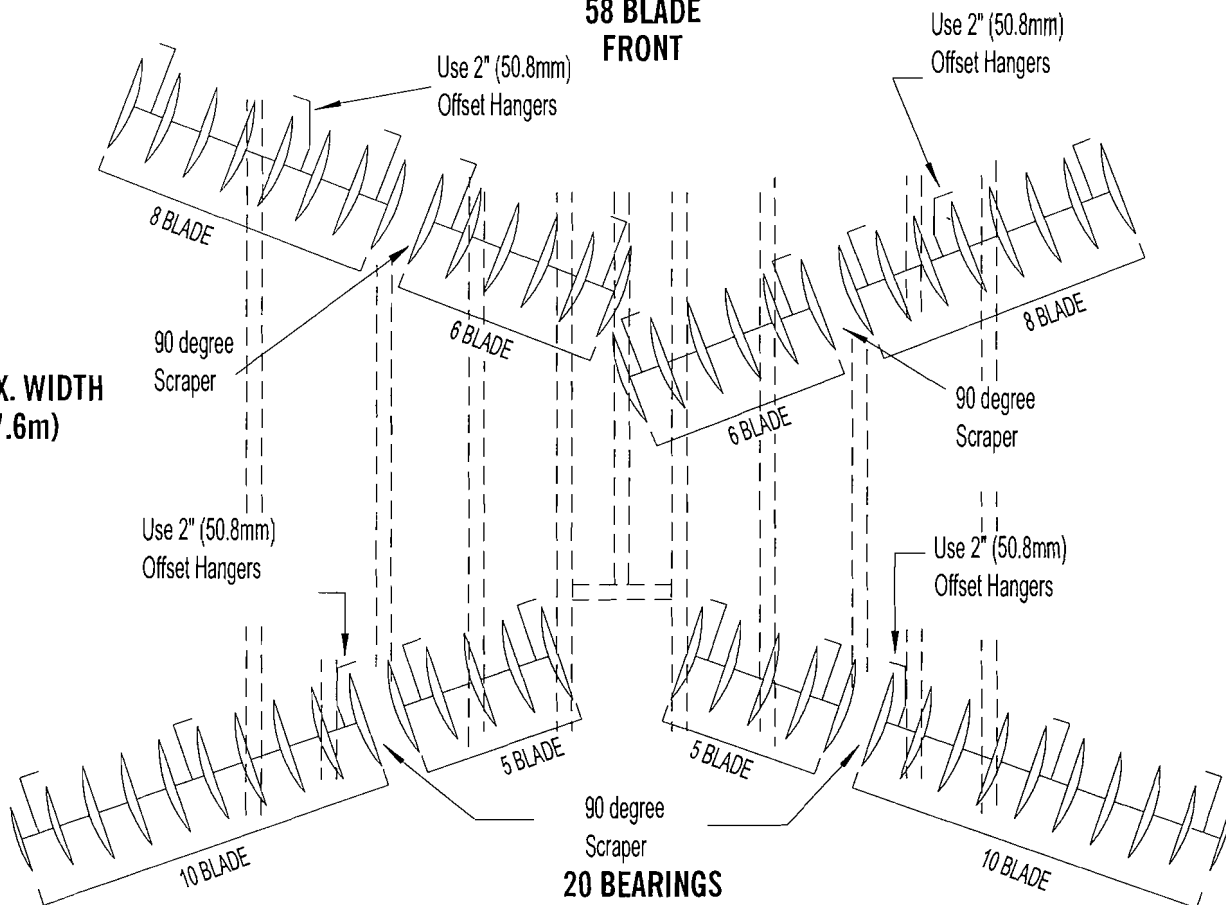


18 BEARINGS

DISC GANG PATTERN - 10-1/2" (267 mm) SPACING

**58 BLADE
FRONT**

**APPROX. WIDTH
25 ft. (7.6m)**



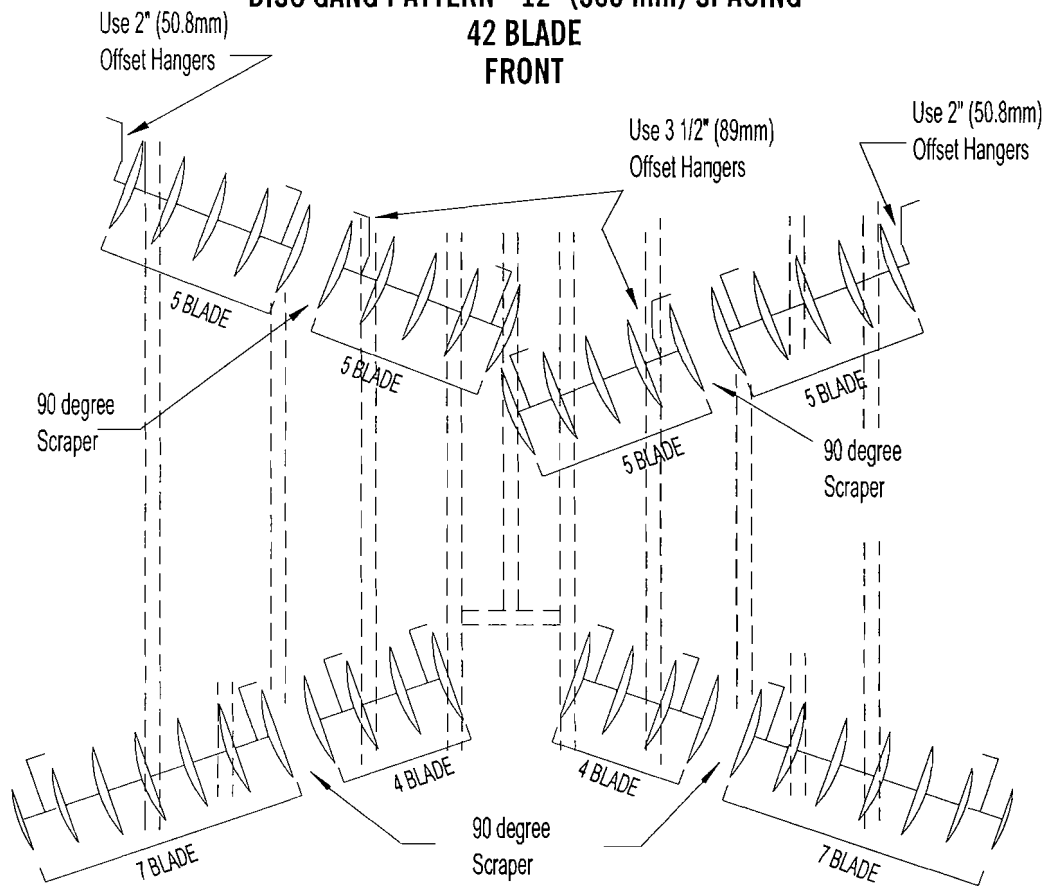
20 BEARINGS

DISC GANG PATTERN - 12" (305 mm) SPACING

42 BLADE

FRONT

**APPROX. WIDTH
20-1/2 ft. (6.2m)**



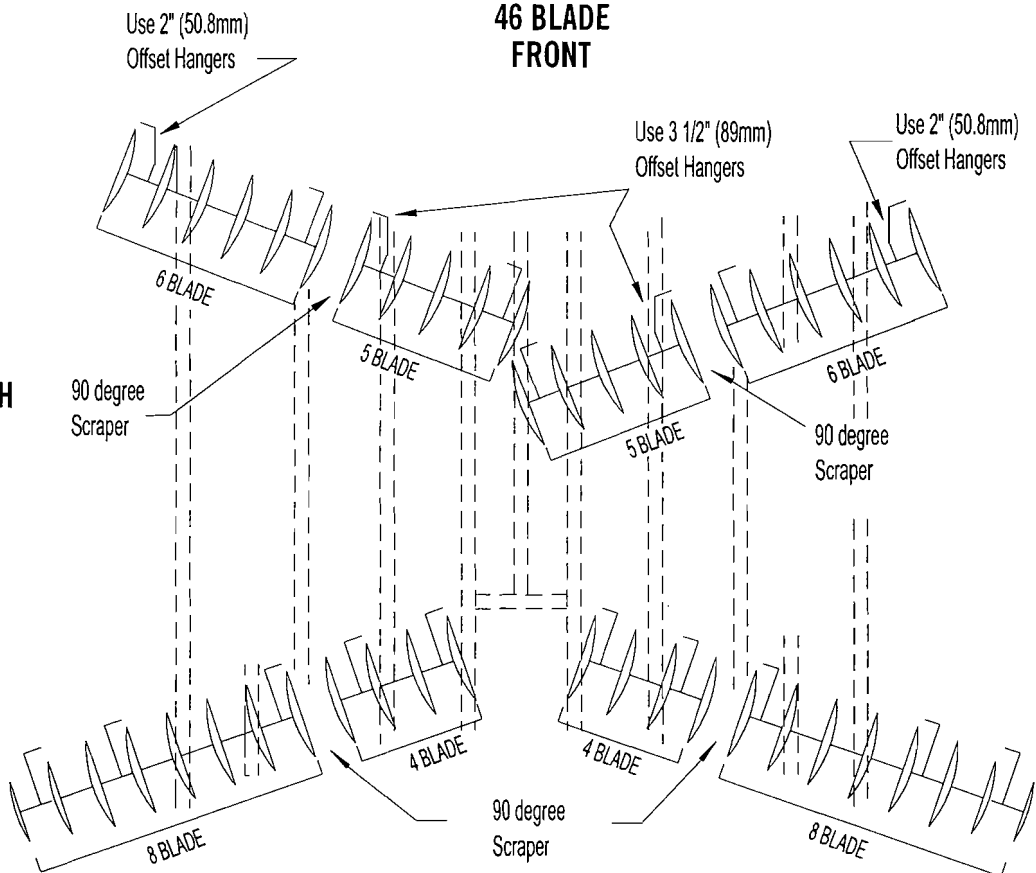
16 BEARINGS

DISC GANG PATTERN - 12" (304 mm) SPACING

46 BLADE

FRONT

**APPROX. WIDTH
23 ft. (7.0 m)**



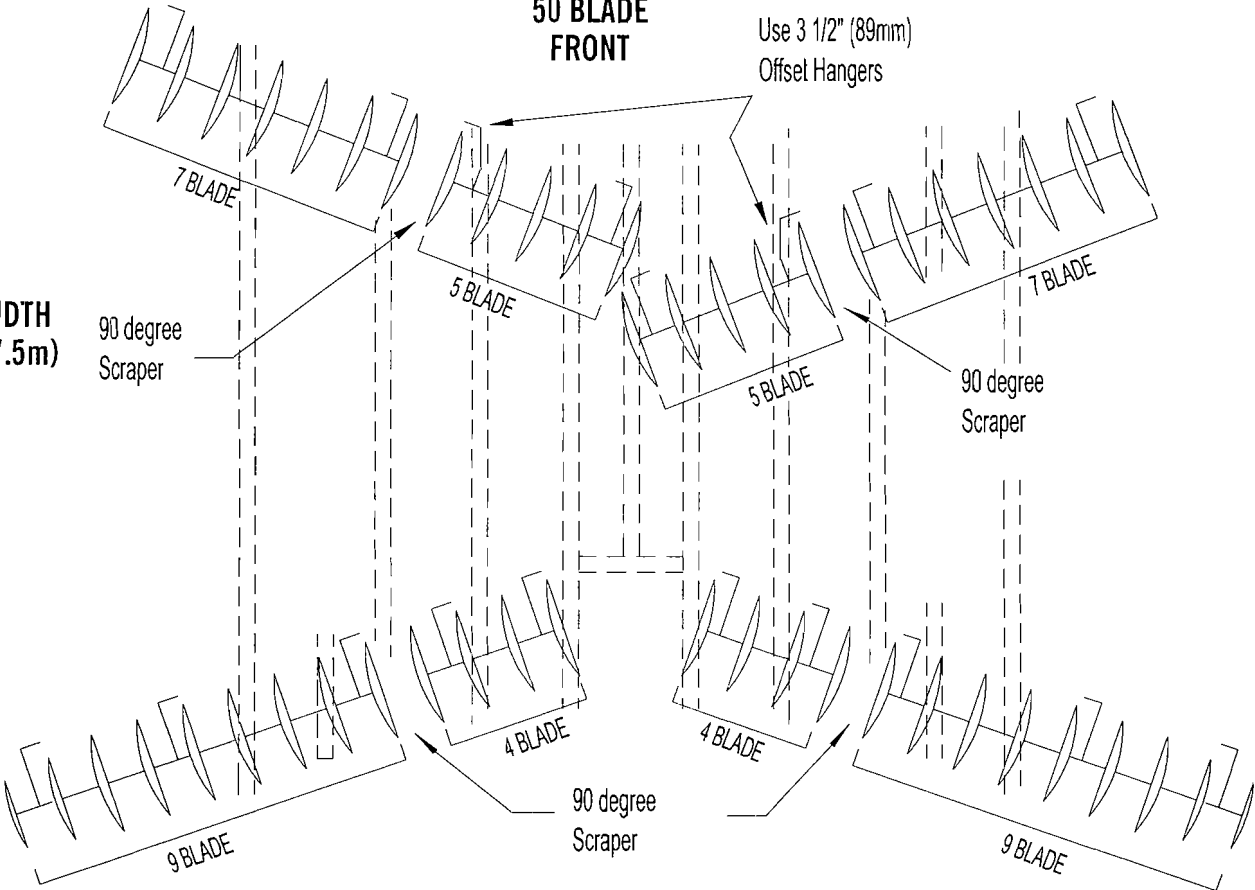
18 BEARINGS

DISC GANG PATTERN - 12" (305 mm) SPACING

**50 BLADE
FRONT**

Use 3 1/2" (89mm)
Offset Hangers

**APPROX. WIDTH
24-1/2 ft. (7.5m)**



18 BEARINGS