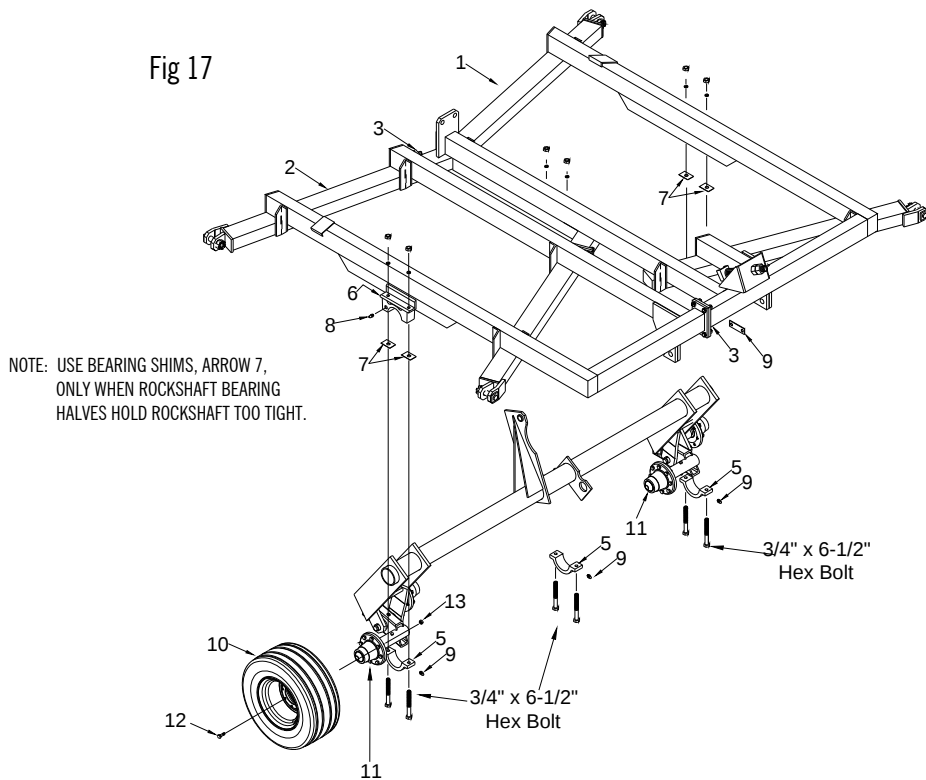


ASSEMBLY INDEX
MODEL 6650 - LTF

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Fig 17



ASSEMBLY INSTRUCTIONS

1. See Fig. 17. Fasten L.H. center frame, arrow 1, and R.H. center frame half, arrow 2, together as shown. Center frame halves are fastened with four (4) 1" x 3-1/4" (25.4mm x 82.3mm) hex. bolts c/w nuts and lockwashers at each front, rear and inner connecting plates, arrow 3. **Do not tighten bolts until after rockshaft bearings have been installed.**
2. See Fig. 17. Raise frame assembly, arrow 1 and 2, approximately 36" (914.4mm) from ground and block securely.
3. See Fig. 17. Fasten center frame rockshaft assembly, arrow 4, to bottom of main frame, with three (3) sets of 5-1/2" (139.7mm) rockshaft bearing halves, arrow 5. Position rockshaft so that outside bearings are positioned between wheel legs. Fasten each rockshaft bearing assembly to bearing bracket, arrow 6, with two (2) 3/4" x 6-1/2" (19.1mm x 165.1mm) hex bolts c/w nuts and lockwashers.

NOTE: Position top half bearing so grease hole is on rear side of rockshaft and bottom half so grease hole is on front side of rockshaft.

4. See Fig. 17. Tighten bolts which fasten rockshaft bearing halves, arrow 5, to frame. Next, tighten bolts which fasten frame connecting plates, arrow 3. If there is a gap between the plates, arrow 3, at top or bottom, install a 1-1/2" (38.1mm) wide 2 hole shim, arrow 9, to take up this gap.

NOTE: If gap is closed by tightening bolts, a preload will be placed on rockshaft bearing. Frame must be level after frame connecting plates, arrow 3, bolts have been tightened.

IMPORTANT: AFTER TIGHTENING ROCKSHAFT BEARING BOLTS, ROCKSHAFT SHOULD BE FREE TO PIVOT IN BEARINGS. IF BEARINGS ARE TOO TIGHT, PLACE TWO (2) 2" x 3" (50.8mm x 76.8mm) SHIM(S), ARROW 7, (AS REQUIRED) BETWEEN BEARING HALVES, ARROW 5.

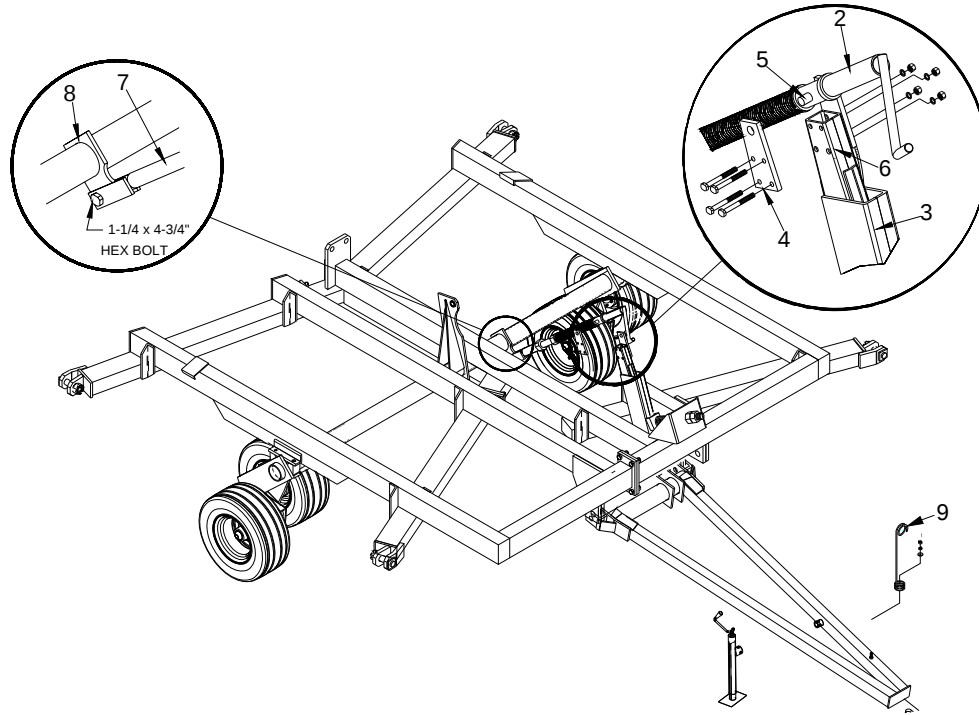
NOTE: Before installing rockshaft bearings, place a coat of grease on bearing surface.



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

5. See Fig. 17. Install one (1) 1/4" x 28 (6.35mm x 28) grease fitting, arrow 8, in each top rockshaft bearing half. Install one (1) 1/4" x 28 (6.35mm x 28) grease fitting, arrow 9, in each bottom rockshaft bearing half.
6. See Fig. 17. Install one (1) eight bolt tire and wheel assembly, arrow 10, to hub assembly, arrow 11, on each side of each wheel leg. Center frame uses four (4) 11.5L x 15FI, load range "F" tires or 12.5L x 15 FI load range "F" tires if tire option is ordered. Secure with six (6) 9/16" x 1-11/16" (14.3mm x 17.5mm) wheel bolts, arrow 12 for 11L x 15 tires or eight (8) 9/16" x 1-11/16" (14.3 x 17.5mm) wheel bolt, arrow 12, for 12.5L x 15 tires. Tighten wheel bolts to 150 ft. lbs (203 N.m). Lock each wheel bolt by installing one (1) 9/16" (14.3mm) N.F. hex nut, arrow 13, on thread that extends past hub. Tighten nuts.

Fig. 18



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

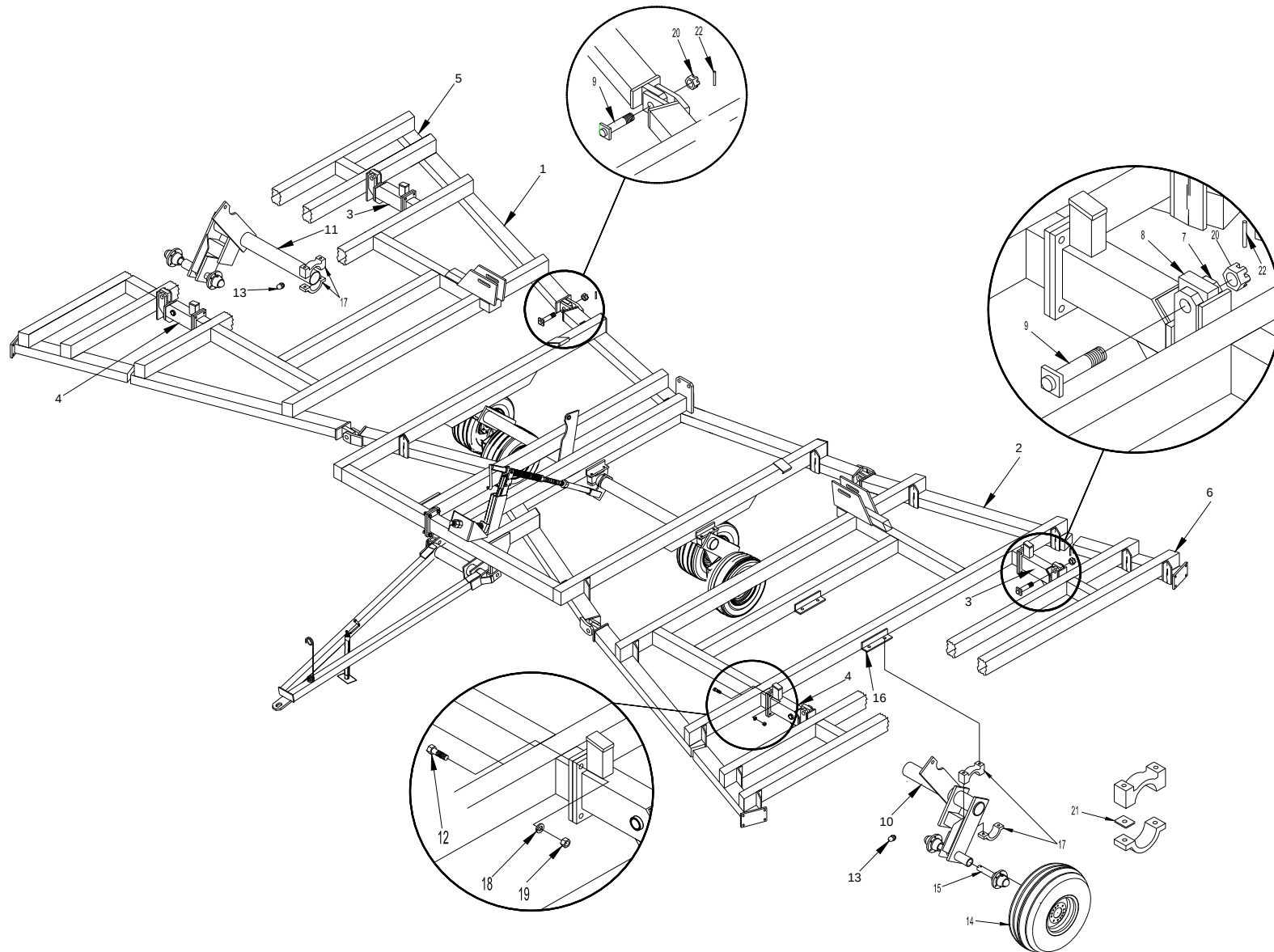
7. See Fig. 18. Attach hitch assembly, arrow 1, to hitch lugs, arrow 11, on center frame with two (2) 1-1/2" dia. x 5" (31.8mm x 127mm) pins. Secure each pin with one (1) 7/16" (11.1mm) lynch pin.
8. See Fig. 18. To attach levelling crank, arrow 2, to levelling arm, arrow 3, remove bolt-on lug, arrow 4, of hitch levelling arm. Next, install 1" (25.4mm) 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 arm. Install 1" 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" (12.7mm x 127mm) N.C. hex bolts c/w nuts and lockwashers. Tighten bolts.
9. See Fig. 18. Attach clevis end of levelling link, arrow 7, to arm, arrow 8, on rockshaft. Fasten with one (1) 1-1/4" x 4-3/4" (31.8mm x 120.7mm) hex bolt c/w nut and lockwasher. Tighten bolt to 840 foot pounds (1139 N.m)

NOTE: The 1-1/4" x 4-3/4" (31.6mm x 120.7mm) bolt must be tightened so that the clevis is drawn up tight against the ball joint in arm, arrow 7. Tighten bolt to 840 foot pounds (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.

- 10 See Fig. 18. Fasten hose support, arrow 9, to a bolt welded to top of hitch. Secure with one (1) 5/8" (15.9mm) nut, one (1) 11/16" (17.5mm) I.D. flatwasher, and one (1) 5/8" (15.9mm) lockwasher. Tighten nut.
- 11 See Fig 18. Mount hitch jack, arrow 10, on round tube welded to inside of hitch . Jack pivots on mounting tube 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. 19



12. ATTACHING INNER WINGS TO THE MAIN FRAME

- a. See Fig. 19. Raise inner wing frame assemblies, arrow 1 and 2, approximately 36" (914 mm) from ground and block securely. Locate one (1) wing frame on each side of main frame. Wing frames are L.H. and R.H. and must be positioned as shown.
- b. See Fig. 19. Fasten L.H. and R.H. wing rockshafts, arrow 10 and 11, 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 16, with two (2) sets of 5-1/2" (139.7 mm) rockshaft bearings, arrow 17. 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 21, (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.*

- c. See Fig. 19. Install one (1) grease fitting, arrow 13, in top half of each bearing assembly.
- d. See Fig. 19. Install two (2) 6 bolt hub and spindle assemblies, arrow 15, into spindle mounting tubes at bottom of wheel leg of each rockshaft, arrows 10 and 11. Secure each spindle with one (1) 1/2" x 3-1/2" (12.5mm x 89mm) hex bolt c/w nylon lock nut.
- e. See Fig. 19. Install one (1) six bolt tire and wheel assembly, arrow 14, to each hub assembly, arrow 15. Secure each wheel with six (6) 9/16" x 1-1/8" (14.2mm x 28.5mm) wheel bolts tighten wheel bolts to 150 ft. Lbs. (203 N · m.). Each wing frame uses (2) two 11L x 15 FI, Load Range "D" tires or 12.5L x 15 FI Load Range "D" tires if tire option is ordered.
- f. See Fig. 19. Install front and rear inner wing bolt-on hinge assemblies (2 each) with inner wings on L.H.S and R.H.S, see arrow 3, 4, with sixteen(16) 3/4" x 2-1/2" (19mm x 63.5mm) bolts, arrow 12 c/w nut and washers, arrow 18,19.
- g. See Fig. 19. Raise outer wing frame assemblies, arrow 5 and 6, approximately 36" (914 mm) from ground and block securely. Locate one (1) wing frame on each side of main frame. Wing frames are L.H. and R.H. and must be positioned as shown. Connect each outer wing frame to inner wing frame by placing hinge lugs, arrow 7, of outer wings over hinge lug, arrow 8, of inner wing frame. Bolt each hinge assembly together with one (1) 1-1/2" x 5" (38 x 127mm) threaded pin, arrow 9, and slotted nut, arrow 20. Secure slotted nut with one (1) 5/8" x 2" (16 x 50.8mm) cotter pin, arrow 22.

13. ATTACHING OUTER WING FOLDING MECHANISM - See Fig. 20.

- a. See Fig. 20. Fasten L.H. and R.H. Diamond brackets, arrow 1, to the inner wing hinge beam, arrow 4, with (1) 1-1/4" x 9" (31.7 x 287mm) N.C. hex bolt, arrow 2, c/w 1-1/4 (288.6mm) N.C. locknut, arrow 3.
- b. See Fig. 20. Fasten one end of each link strap, arrow 5 and 6, to diamond bracket, arrow 1 with 1" x 8" (25.4 x 203.2mm) N.C. hex bolt, arrow 7, c/w locknut, arrow 8. Fasten other end of each link strap, arrow 5 and 6, to bottom lug, arrow 12, on outer wing. Secure with (1) 1" x 8" (25.4 x 203.2mm) N.C. hex bolt, arrow 7, c/w locknut, arrow 8.
- c. See Fig. 20. Fasten barrel end of 4" x 24" (101.6 x 609.6mm) outer wing lift cylinder, arrow 11, to cylinder lug, arrow 13, under inner wing frame. Position cylinder so ports are facing rear of disc. Fasten shaft end of 4" x 24" (101.6 x 609.6mm) outer wing cylinder, arrow 11, to lug on diamond bracket, arrow 1. Secure each end of cylinder with one (1) 1-1/4" x 4-3/16" (31.7 x 120.9mm) pin, arrow 9, c/w 5/16" x 2" (7.9 x 50.8mm) cotter pin arrow 10.

Fig. 20

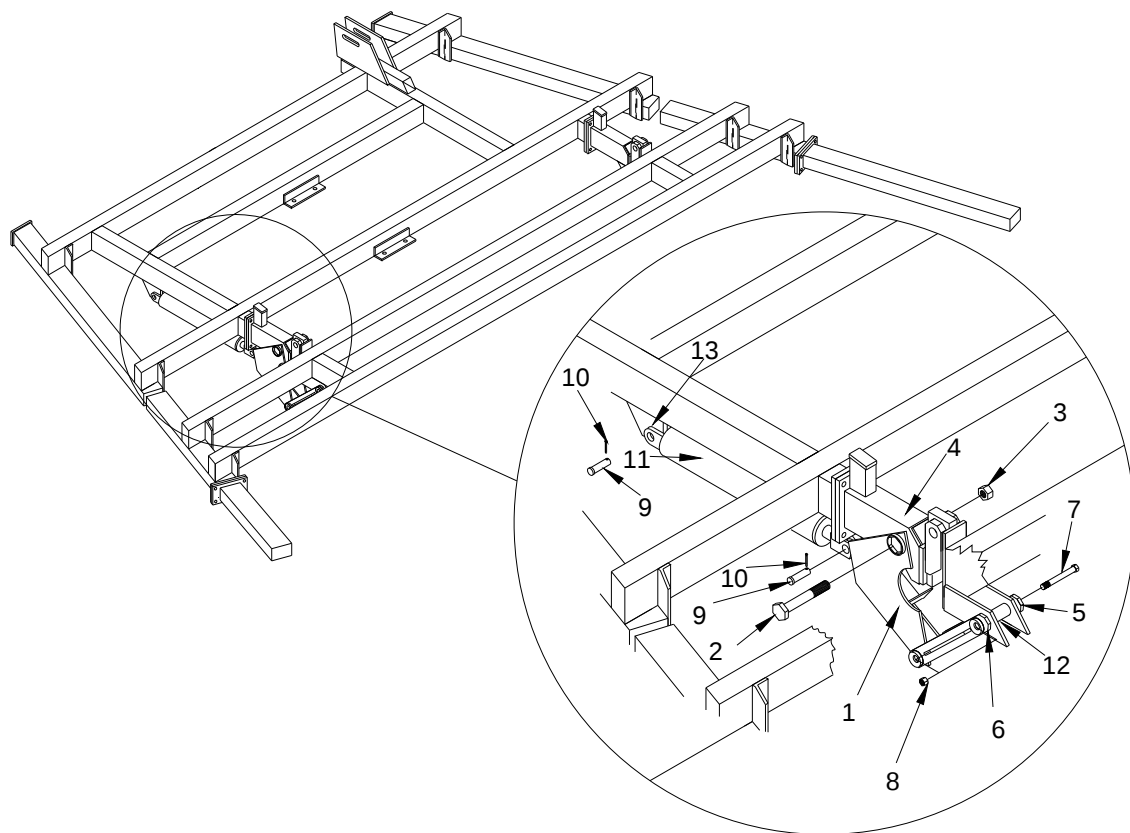
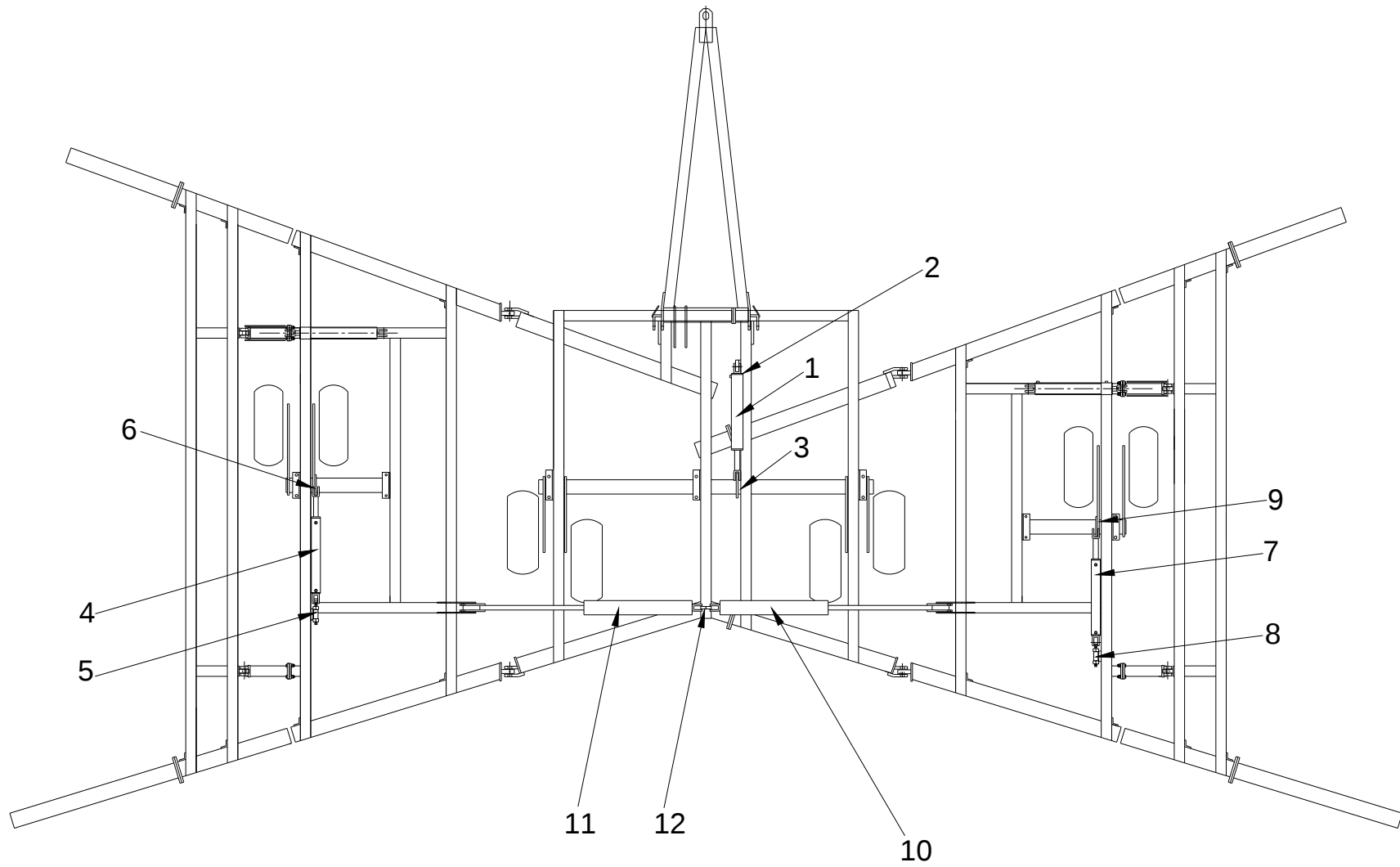


Fig. 21



ASSEMBLY INSTRUCTIONS CONTINUED:

14. See Fig. 21. 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 4-3/16" (31.7 mm x 106.4 mm) clevis pin. Secure cylinder pins with one (1) 5/16" x 2" (7.9 mm x 50.8 mm) cotter pin.
15. See Fig. 21. 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 4-3/16" (31.7 mm x 106.4 mm) clevis pin. Secure cylinder pins with one (1) 5/16" x 2" (7.9 mm x 50.8 mm) cotter pin.
16. See Fig. 21. 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 4-3/16" (31.7 mm x 106.4 mm) clevis pin. Secure cylinder pins with one (1) 5/16" x 2" (7.9 mm x 50.8 mm) cotter pin.

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.

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

Fasten two (2) 5" x 36" (127 mm x 914 mm) wing lift cylinders, arrow 10 and 11, at **front** 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 4-3/16" (31.7 mm x 106.4 mm) clevis pin. Secure each pin with one (1) 5/16" x 1-3/4" (7.9 mm x 44.5 mm) cotter pin. Attach shaft end of wing lift cylinder after cylinders have been filled with oil. 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.

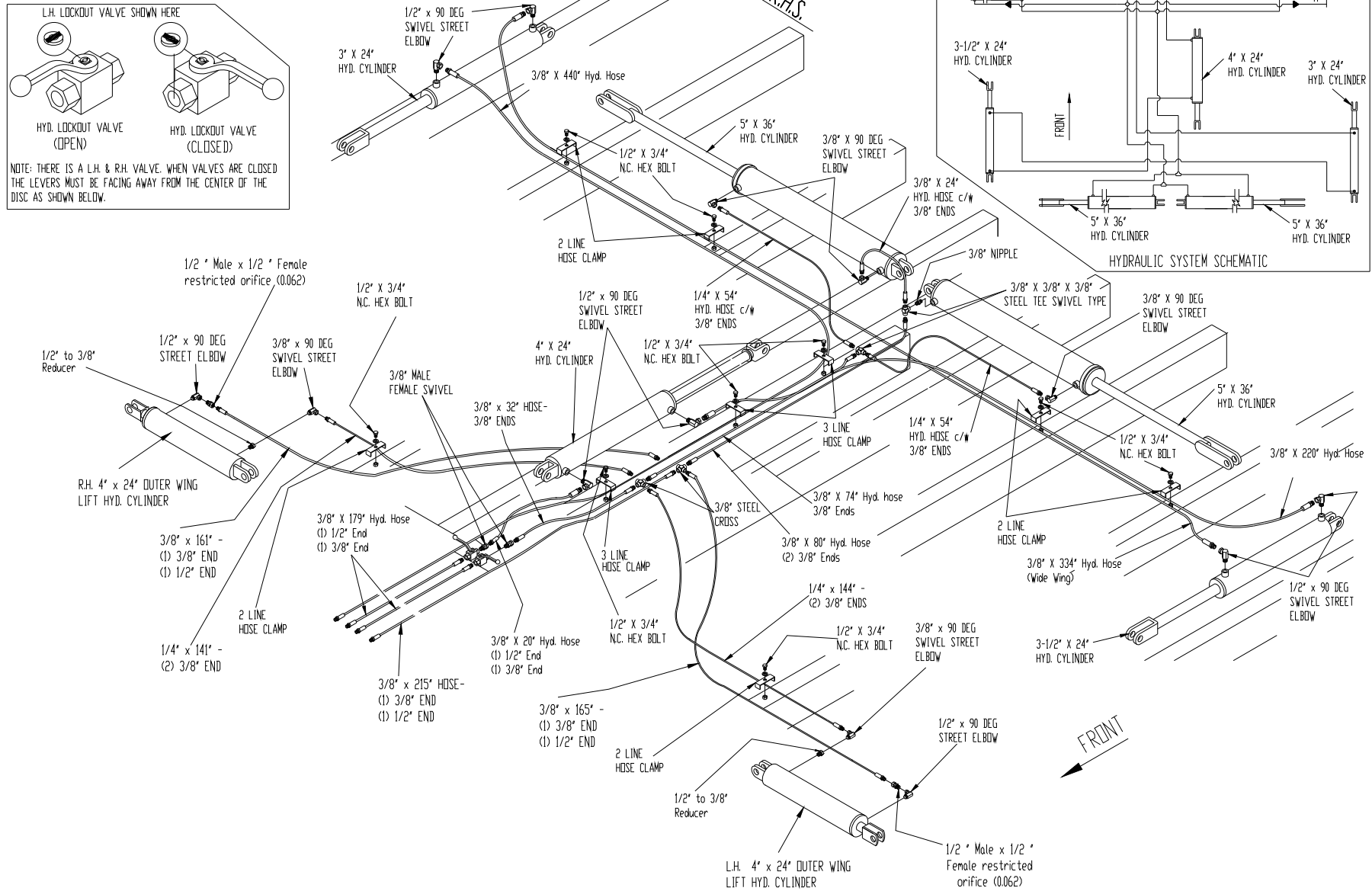


CAUTION: WINGS WILL FREE FALL IF WING CYLINDERS ARE NOT FULL OF OIL CAUSING SERIOUS DAMAGE TO MACHINE OR SERIOUS INJURY OR DEATH TO PERSON(S) NEARBY.



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

Fig. 22



18. See Fig. 22. 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" (6.35 x 101.6mm) N.C. Hex bolt c/w nuts and lockwashers in bracket to hold valves in place.

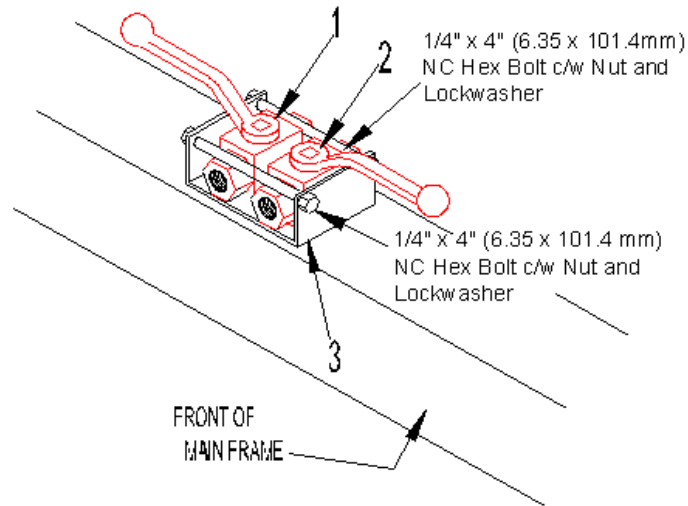


Fig. 23

19. ATTACHING HYDRAULIC HOSES TO ROCKSHAFT CYLINDERS AND WING CYLINDERS See Fig. 29.

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 that the hydraulic system does not leak, seal fittings and hoses with sealing liquid.

- See Fig. 22. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow, into 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 440" (9.39 mm x 11176 mm) hydraulic hose to 1/2" x 90 degree (12.7 mm) swivel street elbow. Then run the hose across the wing frame to the centre of the main frame, and to front of hitch.
- See Fig. 22. 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 334" (9.39 mm x 8483.6 mm) hydraulic hose, to 1/2" x 90 (12.7 mm) degree swivel elbow, on R.H. cylinder. Next run the hose across frame to 1/2" x 90 degree (12.7 mm) swivel elbow, on L.H. cylinder.
- See Fig. 22. 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 rockshaft cylinder. Connect one (1) 3/8" x 220" (9.39 mm x 5588 mm) hydraulic hose, to 1/2" x 90 degree (12.7 mm) swivel elbow, on main frame rockshaft cylinder. Next run the hose across frame to 1/2" x 90 degree (12.7 mm) swivel elbow on L.H. 4" x 24" (101.6 mm x 610 mm) wing rockshaft cylinder.
- See Fig. 22. 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 rockshaft cylinder. Connect one (1) 3/8" x 20" (9.39 mm x 508 mm) hydraulic hose, to rear port of R.H. lock-up valve, 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.
- See Fig. 22. Install one (1) 3/8" x 90 degree (9.25 mm) swivel street elbow to the rear R.H wing lift cylinder. Connect one end of (1) 3/8" x 24" (9.39 mm x 609.6mm) hydraulic hose to the barrel end port of 5" x 36" (127mm x 914.4 mm) cylinder and one end to the swivel tee.

- f) See Fig. 22. Install one (1) 3/8" (9.39 mm) male x 3/8" (9.39 mm) male nipple, in the barrel end port of the rear L.H. 5" x 36" (127 mm x 914 mm) wing lift cylinder. Then install one (1) 3/8" x 3/8" x 3/8" (9.39 mm x 9.39 mm x 9.39 mm) tee, to the 3/8" (9.39 mm) nipple. Install one (1) 3/8" x 90 degree (12.7 mm) street elbow, into the shaft end of L.H. 5" x 36" (127 mm x 914 mm) wing lift cylinder.
- g) See Fig. 22. Install one (1) 3/8" x 90 degree (9.39 mm) swivel street elbow, into the barrel end port of the rear R.H. 5" x 36" (127 mm x 914 mm) wing lift cylinder. Install one (1) 3/8" x 90 degree (12.7 mm) street elbow, into the shaft end port, of rear R.H. 5" x 36" (127 mm x 914 mm) wing lift cylinder.
- h) See Fig. 22. Install one (1) 3/8" (9.39 mm) male nipple into one (1) 3/8" (9.39 mm) steel cross, and fasten into the rear of the L.H. lockup valve. Then fasten one (1) 3/8" (9.39 mm) male-female swivel into the 3/8" (9.39 mm) steel cross. Fasten one (1) 3/8" x 106" (9.39 mm x 2692.4mm) hydraulic hose to the 3/8" (9.39 mm) tee on the barrel end of the rear L.H. wing lift cylinder.
- i) See Fig. 22. Install one (1) 3/8" x 54" (9.39 mm x 1372 mm) hydraulic hose to the 3/8" (9.39 mm) swivel tee on center tube at rear main frame and other end with shaft end of rear L.H. 5" x 36" (127 mm x 914 mm) wing lift cylinder.
- j) See Fig. 22. Install one (1) 3/8" x 54" (9.39 mm x 1372 mm) hydraulic hose to the 3/8" (9.39 mm) swivel tee on center tube at rear main frame and other end with shaft end of rear R.H. 5" x 36" (127 mm x 914 mm) wing lift cylinder.
- k) See Fig. 22. Install one (1) 3/8" x 115" (9.39 mm x 2921mm) hydraulic hose to the 3/8" (9.39 mm) swivel tee on center tube at rear of main frame fasten opposite end to the 3/8" (9.39 mm) steel cross attached to the L.H. lockup valve front L.H side of frame.
- l) See Fig. 22. Install two (2) 3/8" x 179" (9.39 mm x 4546.6 mm) having one (1) 1/2" and one (1) 3/8" hydraulic hoses to the front port of the hydraulic lockup valves, and run hoses to front of hitch.
- m) See Fig. 22. Install one (1) 3/8" x 179" (9.39 mm x 4546.6 mm) hydraulic hose having (1) 1/2" and one (1) 3/8" to the 3/8" (9.39 mm) steel cross at the front of disc.
- n) See Fig. 22. Install one (1) 3/8" x 165" (9.39 mm x 2286 mm) hydraulic hose to the 3/8" (9.39 mm) steel cross at front and other (1/2") end to the restricted orifice. Attach restricted orifice to the shaft end of L.H. 4" x 24" (101.6 mm x 610 mm) outer wing cylinder.
- o) See Fig. 22. Install one (1) 3/8" x 165" (9.39 mm x 2286 mm) hydraulic hose to the 3/8" (9.39 mm) steel cross at front and other (1/2") end to the restricted orifice. Attach restricted orifice to the shaft end of R.H. 4" x 24" (101.6 mm x 610 mm) outer wing cylinder.
- p) See Fig. 22. Install one (1) 3/8" x 144" (9.39 mm x 2286 mm) hydraulic hose to the 3/8" (9.39 mm) steel cross at front and other (1/2") end to barrel end of R.H. 4" x 24" (101.6 mm x 610 mm) outer wing cylinder
- q) See Fig. 22. Install one (1) 3/8" x 144" (9.39 mm x 2286 mm) hydraulic hose to the 3/8" (9.39 mm) steel cross at front and other (1/2") end to barrel end of R.H. 4" x 24" (101.6 mm x 610 mm) outer wing cylinder

20. SECURING HYDRAULIC HOSES TO FRAME - See Fig. 22.

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.

21. HOW MAIN LIFT ROCKSHAFT HYDRAULIC SYSTEM WORKS - See Fig. 29.

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.



22. **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. 22. 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, extending cylinders. Hold hydraulic lever for (3) minutes allowing all cylinders to fully extend. Next, fully retract all cylinders then fully extend them and hold hydraulic level another (3) minutes. This procedure will purge air from all cylinders and fully synchronize them. 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.



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

See Fig. 22. Pump oil into all 36" (914 mm) stroke 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, place shaft end of each cylinder between two cylinder lugs on each wing frame. Pin cylinder shaft to slotted hole in cylinder lugs with one (1) 1-1/4" x 4-3/4" (31.7 mm x 121 mm) pin and two (2) 1-9/32" I.D. flatwashers. 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 THE CYLINDERS 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.

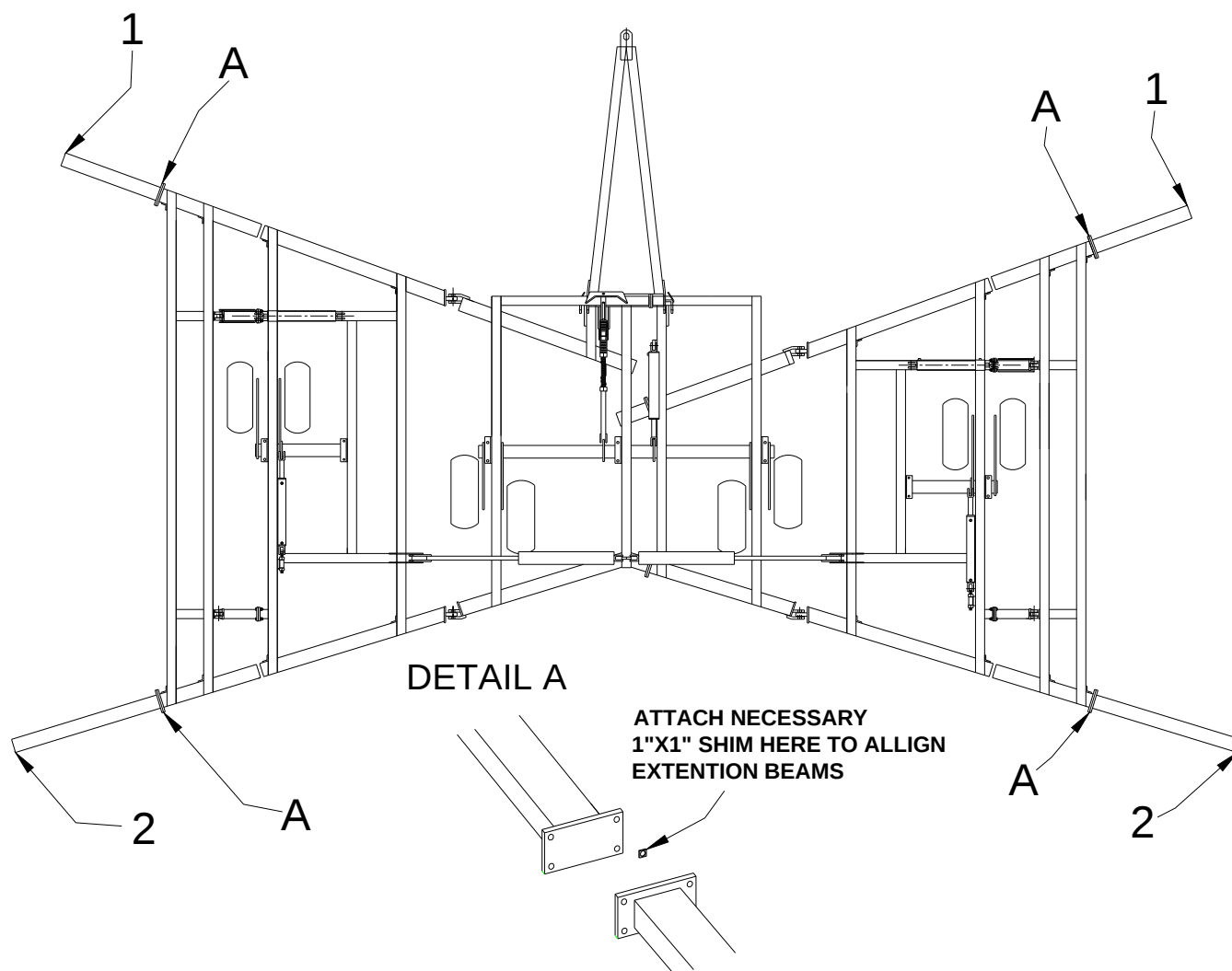


CAUTION: TO ASSEMBLE BALANCE OF DISC, EXTEND MAIN LIFT CYLINDERS RAISING FRAME. BE SURE MAIN LIFT CYLINDERS ARE COMPLETELY FILLED WITH OIL. THEN PLACE ADEQUATE SUPPORT UNDER MAIN FRAME AND EACH WING FRAMES. DO NOT USE LOCK OUT VALVE AS SAFETY DEVICE TO PREVENT FRAME FROM FALLING. IF ANY HYDRAULIC COMPONENT 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.

24. ATTACHING GANG BEAM EXTENSIONS - See Fig. 24.



NOTE: See gang beam chart on Page 39 to determine length of gang beam extensions for the size of your disc.

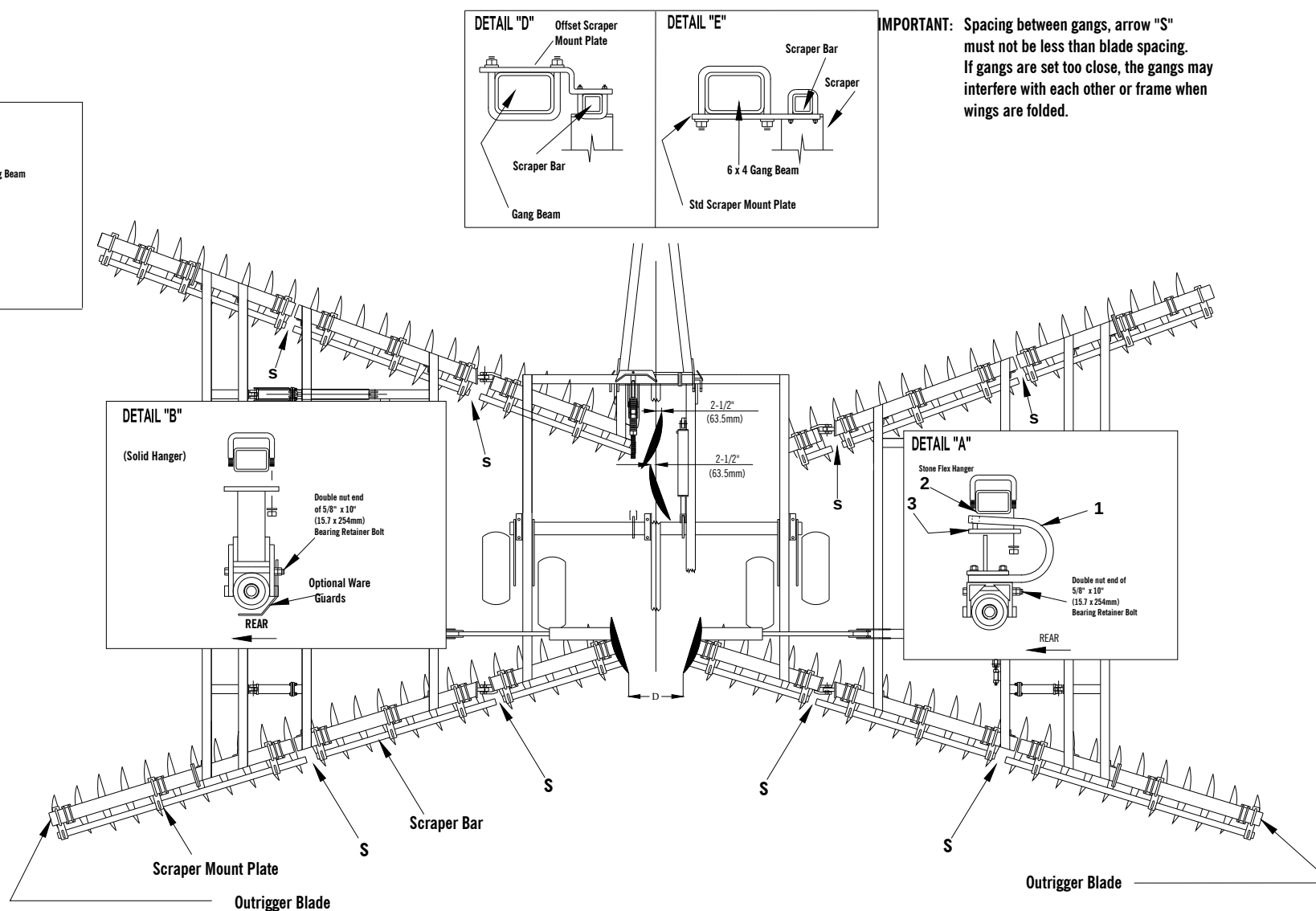
- A) FRONT WING: Attach front gang beam extension, arrow 1, to attaching plates that are welded to each wing frame. Fasten with four (4) 3/4" x 2-1/2" (19mm x 254mm) hex bolts c/w nuts and lockwashers. Tighten bolts.
- B) REAR WING: Attach rear gang beam extension, arrow 2, to attaching plates that are welded to each wing frame. Fasten with four (4) 3/4" x 2-1/2" (19mm x 254mm) hex bolts c/w nuts and lockwashers. Tighten bolts.

NOTE: Use necessary 1" x 1" (25.4mm x 25.4mm) shim plates to align and level each beam extension. See Fig. 24, Detail A.



CAUTION: TO PREVENT SERIOUS INJURY OR DEATH FROM FALLING FRAMES, ALWAYS PLACE ADEQUATE SUPPORTS UNDER ALL THREE FRAMES.

Fig. 25.



IMPORTANT: Spacing between gangs, arrow "S" must not be less than blade spacing. If gangs are set too close, the gangs may interfere with each other or frame when wings are folded.

NOTE: The maximum setting between rear gangs, dimension "D" is 24" (610mm)

25. ATTACHING GANG ASSEMBLIES - See Fig. 25

NOTE: Find gang pattern for your disc on pages 41 to 46.

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" (15.7 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" (15.7 x 254mm) bearing retainer bolt. When the blades are correctly orientated the double nut end of the 5/8" x 10" (15.7 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. 25 for the direction rear gangs face.

Attach bearing hangers to gang beams with two (2) 7/8" x 6" (22.0 x 152mm) 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 AD to attach hangers.

c) **FRONT GANGS** - Roll front gang assemblies in place under front gang beams. See Fig. 25 for the direction the front gangs face.

Attach bearing hangers to the gang beams with two (2) 7/8" x 6" (22.0 x 152mm) 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 AC below to attach hangers.

d) See Detail "A", Fig. 25. 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 two (2) U-bolts. Be sure dowel pin of backing plate, arrow 3, is installed in slot of spring shank.

e) See Fig. 25. Set front center frame gangs, so that the leading edge of inside blade, arrow 5, on rear gang is 2-1/2" (63.5mm) past center of disc frame (center line of center frame is shown in Fig. 25).

f) See Fig. 25. Set rear centre fame gangs, arrow 5, so that the distance between the rear edge of the two inside blades, dimension "D" is equal to 2" (50.8mm) less than diameter of blade to a maximum of 24" (610mm). For example, if your disc is equipped with 24" (610mm) diameter blades, dimension "D" would be set at 22" (559mm). If your disc is equipped with 26" or 28" (660mm or 711mm) diameter blades, dimension "D" would be set at a maximum of 24" (610mm). Be sure rear gangs are centered.

g) See Fig. 25. Adjust blade to blade distance between individual gang assemblies. This distance should be the same as the blade spacing of you disc.

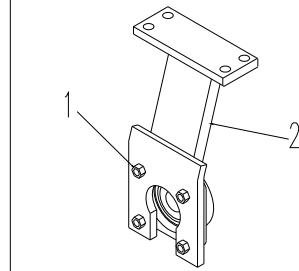
IMPORTANT: SPACE BETWEEN WING GANGS AND CENTRE FRAME GANGS **MUST NOT** BE LESS THAN BLADE SPACING. IF GANGS ARE SET TOO CLOSE, THE TWO GANGS MAY INTERFERE WITH EACH OTHER WHEN WINGS ARE FOLDED.

h) Before tightening bearing hanger U-bolts, check each bearing hanger to make sure hanger is sitting square under gang beam. Next tighten U-bolts to 430 ft. lbs. (583.0 N m).

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

26. See Fig. 26. 410WSS Bearing Only — Loosen all the bolts, arrow 1, which fastens 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.

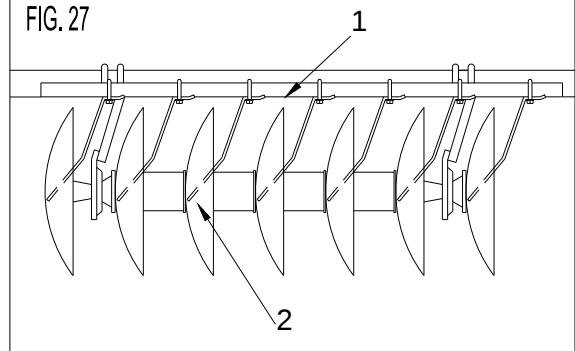
FIG. 26



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

28. See Fig. 27. Adjust scraper bar, arrow 1, and scrapers, arrow 2, of each gang so that each scraper blade is in contact with disc blade. Tighten U-bolts.

FIG. 27

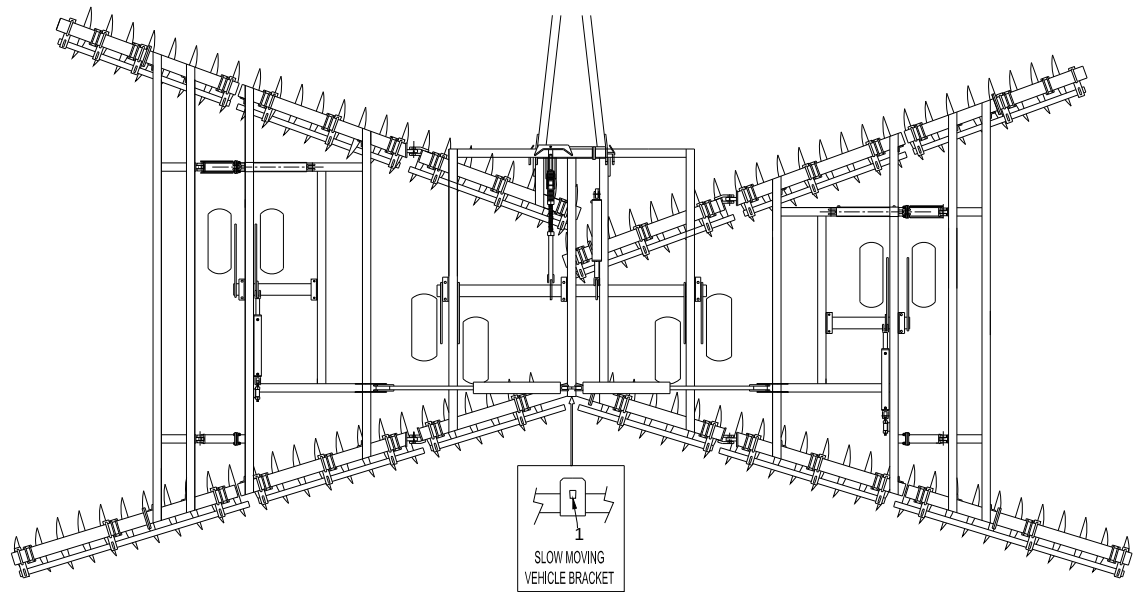


IMPORTANT: *Disc will require less horse power to pull if scrapers are adjusted properly.*



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

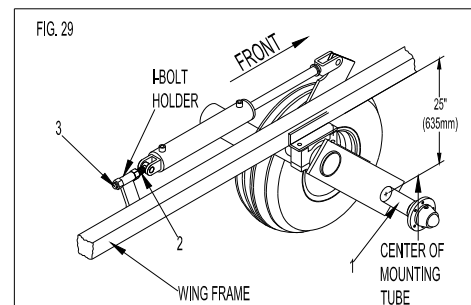
Fig. 28.



29. See Fig.28. Place the Slow Moving Vehicle sign into the weld-on SMV bracket, arrow 1. Tighten nut.

30. See Fig. 29. Level wing frame with main frame as follows:

- 1) Raise disc by extending rockshaft cylinder. Be sure wing rockshaft cylinders are fully extended.
- 2) Check the distance the spindle mounting tube, arrow 1, (welded to bottom of rockshaft wheel leg) is from the bottom of each wing frame. This distance should be 25" (635mm).
- 3) If spindle mounting tube location is not correct, adjust length of wing cylinder, I-bolt, arrow 2.
- 4) After adjustment is complete, lock I-bolt by tightening front nut, arrow 3, against I-bolt holder.

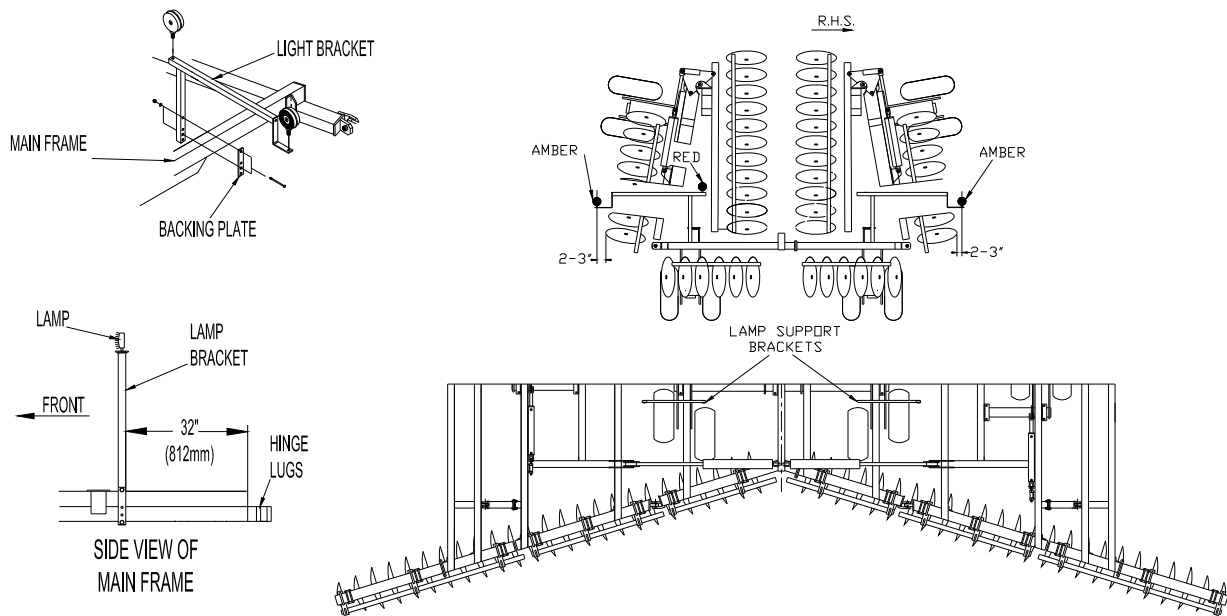


NOTE: *The above wheel leg setting is an initial setting only. If wing gangs do not cut at same depth as the main frame gangs, further wing cylinder adjustment will be required.*



IMPORTANT: *Be sure axis of barrel end pin is horizontal and cylinder points 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. 30.



31. WARNING LIGHT KIT (OPTIONAL) - MOUNT INSTRUCTIONS - See FIG. 30.



WARNING: DO NOT STAND UNDER 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.

- a) With disc folded, install one lamp support bracket on each side of main frame. Locate each bracket on inside of double 4" x 4" (101.6mm x 101.6mm) tubes 32" (812mm) from rear of main frame. Fasten each support with two (2) 1/2" x 7-1/2" (12.7mm x 190.5mm) hex bolts c/w nuts and lockwashers and one (1) backing plate.

IMPORTANT: Lamp brackets must be positioned as shown in ILL. 30 so they don't interfere with the hydraulic hoses when wings are folded.

- b) Fasten one (1) mount plate to top of each lamp support bracket with one (1) 1/2" x 2" x 3" (12.7mm x 50.8mm x 76.2mm) U-bolt c/w nuts and lockwasher. Do not tighten U-bolt at this time.
- c) Fasten one (1) amber lamp and one (1) red lamp to the L.H. mount plate. 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 mount plate. Secure with nuts. Leave nuts loose on amber lamp so ring connector on wiring can be installed later.
- d) Fasten one (1) amber lamp to R.H. mount plate. Position so amber lamp faces rear. Install lamp through 3/4" (19.1mm) hole in mount plate. Secure with nuts.

IMPORTANT: Paragraphs "C" and "D" and Fig. 30 describe and show lamp positions for North American public roads. For other countries such as Australia, check local laws and regulations for required warning light mounting positions.

- e) Loosen U-bolt of each mount plate, then with disc folded for transport, position L.H. lamps so center of red lamp is 2 to 3" (50.8mm to 76.2mm) outside widest point of machine. Position R.H. amber lamp so it is 2 to 3" (50.8mm to 76.2mm) outside widest point of machine. Warning lamps must be visible from the front and the rear of the machine. Tighten mount plate U-bolts.



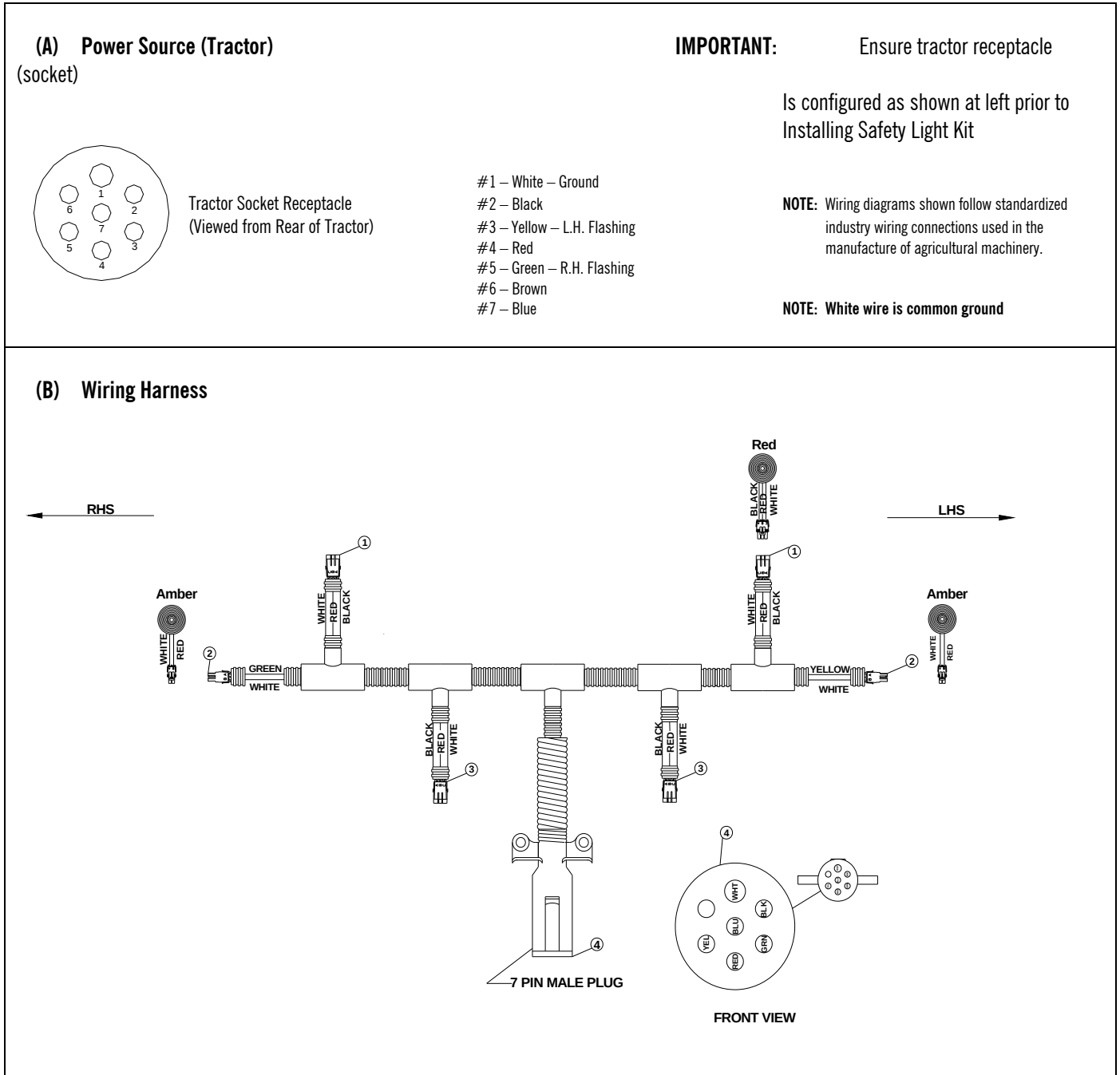
CAUTION: WHEN TRANSPORTING DISC OVER PUBLIC ROADS, USE THE SMV EMBLEM AND WARNING LIGHT FOR PROTECTION OF TRACTOR AND OTHER MOTOR VEHICLE OPERATORS. CHECK LOCAL LAWS FOR WIDTH AND HEIGHT MAXIMUMS.

WARNING LIGHT INSTALLATION CONTINUED:

- a) See Fig. 31 – Lay wiring harness on hitch and center frame with 7 pin male plug, arrow 4, located at front of wiring harness is tagged L.H.S. (left hand side) and R.H.S. (right hand side) at outer plugs. When laying harness on frame ensure L.H. end of harness is placed on L.H.S. of main frame and R.H. end is placed on R.H.S. of frame. L.H. and R.H. is determined by view of disc from rear.

NOTE: The R.H. and L.H side of harness must be properly positioned to allow signal light to work properly. Run harness along lamp support brackets. Tie harness to frame and lamp support as required with the straps. Next plug in each amber lamp to two wire plug, arrow 2, at outer ends of harness. Plug in red lamp to a 3 wire plug, arrow 1.

FIG. 31.



COMPONENTS:

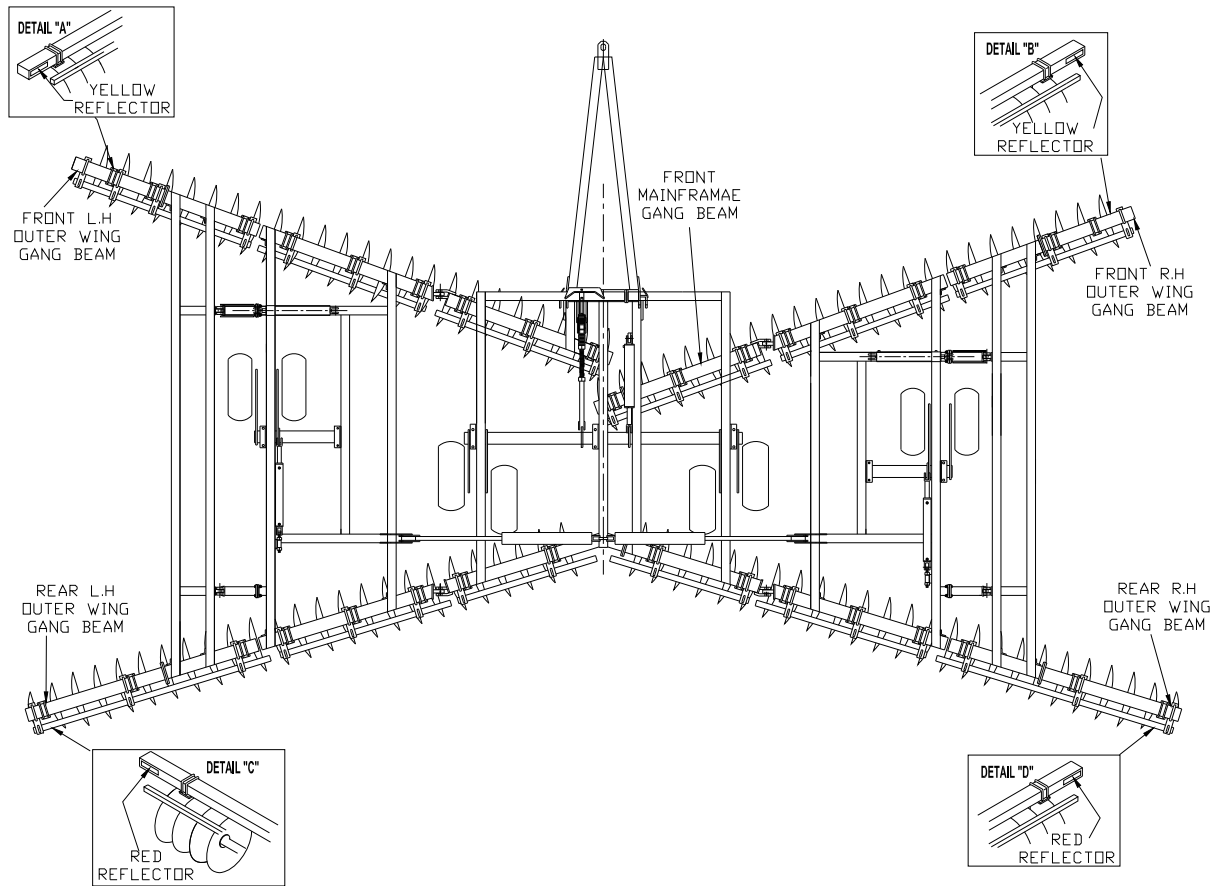
2 - Lamps - amber both sides

1 - Lamp - red one side

1 – Wiring Harness

10 – Cable ties

FIG. 32



32. REFLECTOR DECAL INSTALLATION - See Fig 32.

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

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

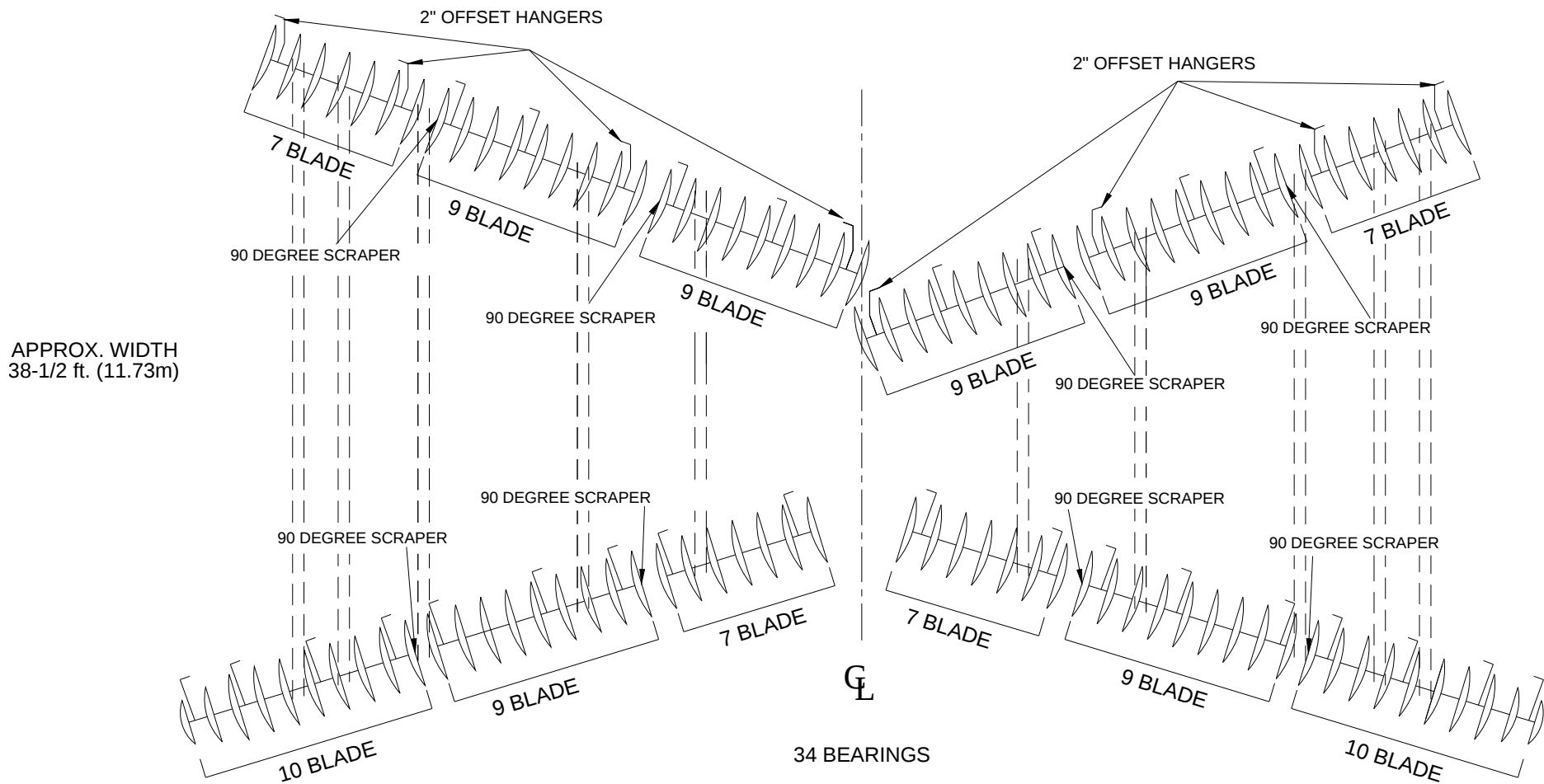
6650-LTF GANG BEAM EXTENSION CHART
9" SPACING

DISC	FRONT EXTENSION	REAR EXTENSION
6650-LTF - 110 Blade	34"(863.6mm)Gang beam ext.	58"(1473.2mm)Gang beam ext.
6650-LTF - 106 Blade	24"(609.6mm)Gang beam ext.	49"(1244.6mm)Gang beam ext.
6650-LTF - 102 Blade	15"(381 mm)Gang beam ext.	40"(863.6mm)Gang beam ext.

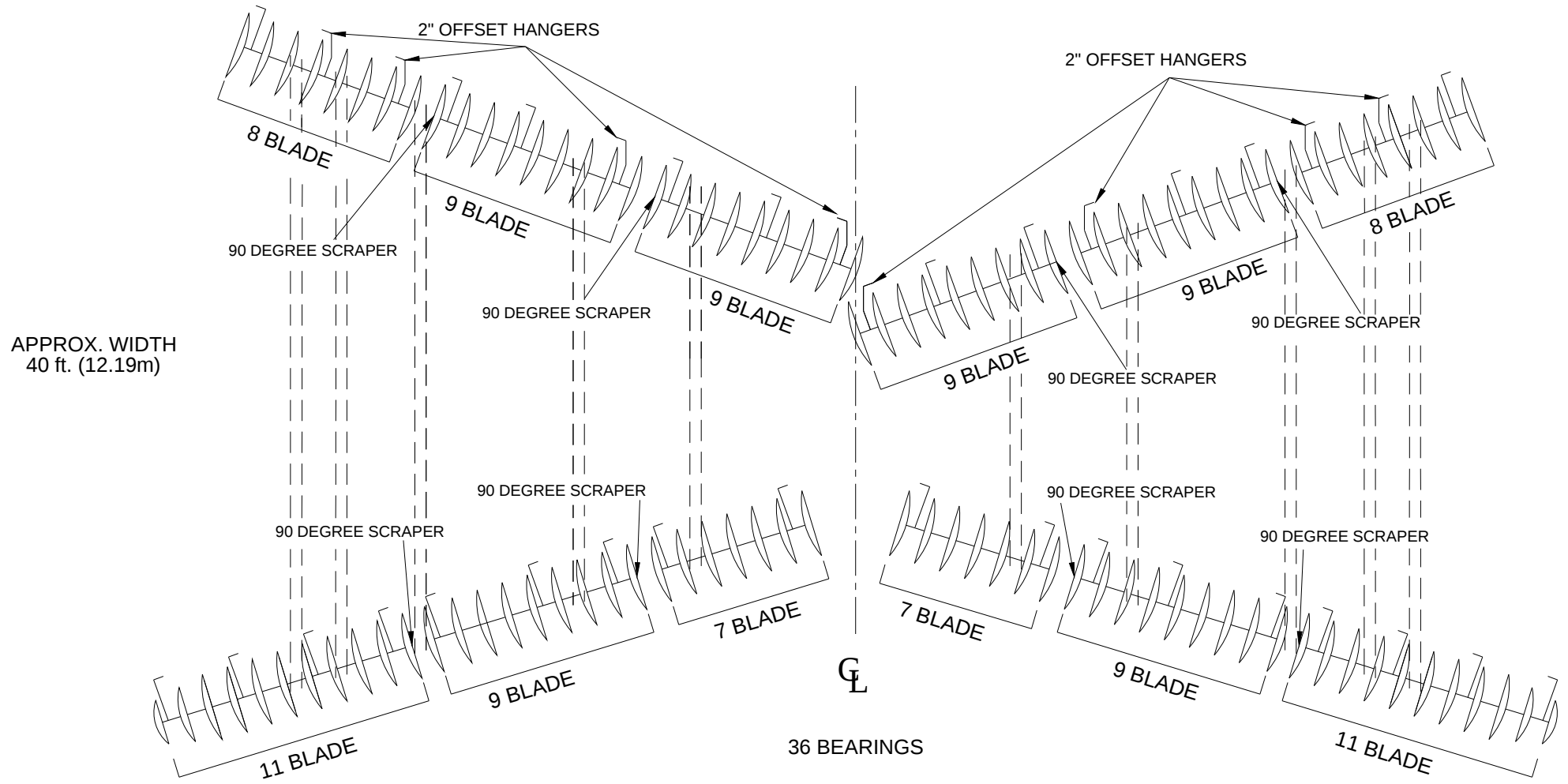
10-1/2" SPACING

DISC	FRONT EXTENSION	REAR EXTENSION
6650-LTF - 98 Blade	40"(1016 mm)Gang beam ext.	66"(1676 mm) Gang beam ext.
6650-LTF - 94 Blade	28"(711.2 mm)Gang beam ext.	54"(1371.6 mm)Gang beam ext.
6650-LTF - 90 Blade	18"(457.2mm) Gang beam ext.	45"(1143 mm)Gang beam ext.

6650-LTF
DISC GANG PATTERN 9" SPACING
102 BLADE



6650-LTF
DISC GANG PATTERN 9" SPACING
106 BLADE



DISC GANG PATTERN 9" SPACING

90 BLADE

90 BLADE

2" OFFSET HANGERS

2" OFFSET HANGERS

90 DEGREE SCRAPER

90 DEGREE SCRAPER

90 DEGREE SCRAPER

6 BLADE

8 BLADE

8 BLADE

90 DEGREE SCRAPER

8 BLADE

6 BLADE

8 BLADE
||

90 DEGREE SCRAPER

90 DEGREE SCRAPER

90 DEGREE SCRAPER

90 DEGREE SCRAPER

6 BLADE

6 BLADE

8 BLADE

9 BLADE

9 BLADE

8 BLADE

$$\mathbb{G}_L$$

32 BEARINGS

APPROX. WIDTH
38-1/2 ft. (11.73m)

6650-LTF

DISC GANG PATTERN 10-1/2" SPACING

94 BLADE

APPROX. WIDTH
40 ft. (12.19m)

