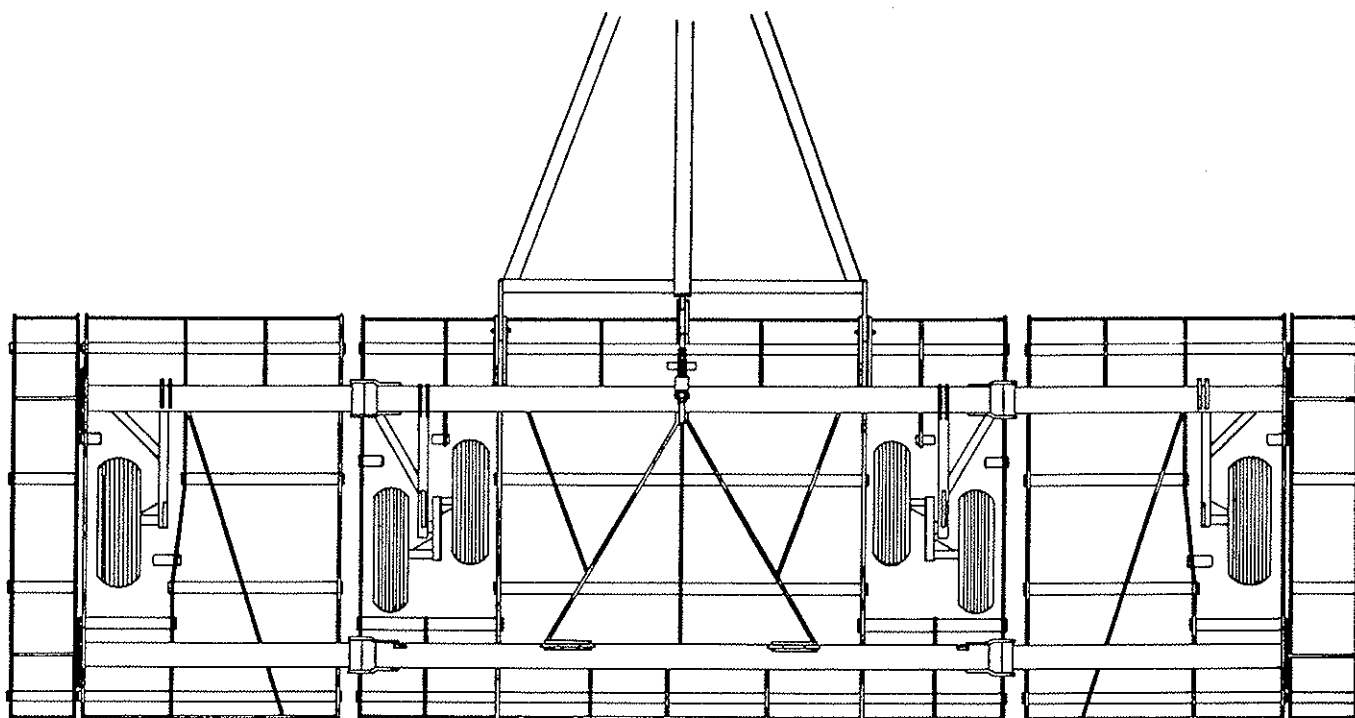




KONGSKILDE

SBC CULTIVATORS 23', 25', 28', 31', 34', 40' OWNERS MANUAL Warranty Certificate Assembly Instructions Operating Guide



**KONGSKILDE LIMITED, EXETER, ONTARIO, CANADA
PHONE (519) 235-0840**

**Branches: Memphis, Tennessee:
Bowling Green, Ohio:**

INTRODUCTION

This manual has been developed to assist you in the assembling, operating and servicing of your new Kongskilde product. Read it carefully: it will provide you with information that will enable you to obtain years of dependable service.

If you did not receive a warranty registration form, contact your dealer. He will be able to obtain one for you. It is important that the warranty registration be completed and returned to the factory to validate the warranty protection period.

PRODUCT SAFETY PRECAUTION



1. Read owner's manual.
2. Make certain all safety decals, reflectors and SMV signs are applied to your unit.
3. Comply with all state and local laws concerning transporting the machinery on public roadways.
4. Do not transport the implement over 20 m.p.h.
5. Always make certain all wing transport pins and wheel field lock out bars are secured before transporting.
6. Never remove lock out pins or transport pins until making certain cylinders are filled with oil.
7. Never unfold or fold the unit unless cylinders are completely full of oil.
8. Be certain observers are free of working area whenever folding or unfolding the machinery or in any way using the hydraulic system.
9. Never crawl under machine to adjust or replace tines, shares, etc., without properly blocking to avoid falling.
10. Be alert when walking around the machinery in transport position to avoid walking into the point of a shank or sweep. Severe head or body injury could result.
11. Check wheel bolts periodically for tightness.

SAFETY-ALERT SYMBOL



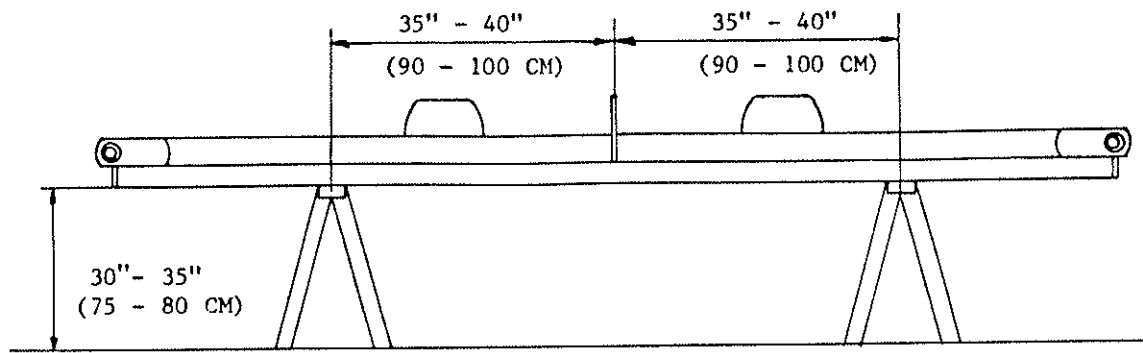
BE ALERT!

**THIS SYMBOL MEANS
WARNING !**

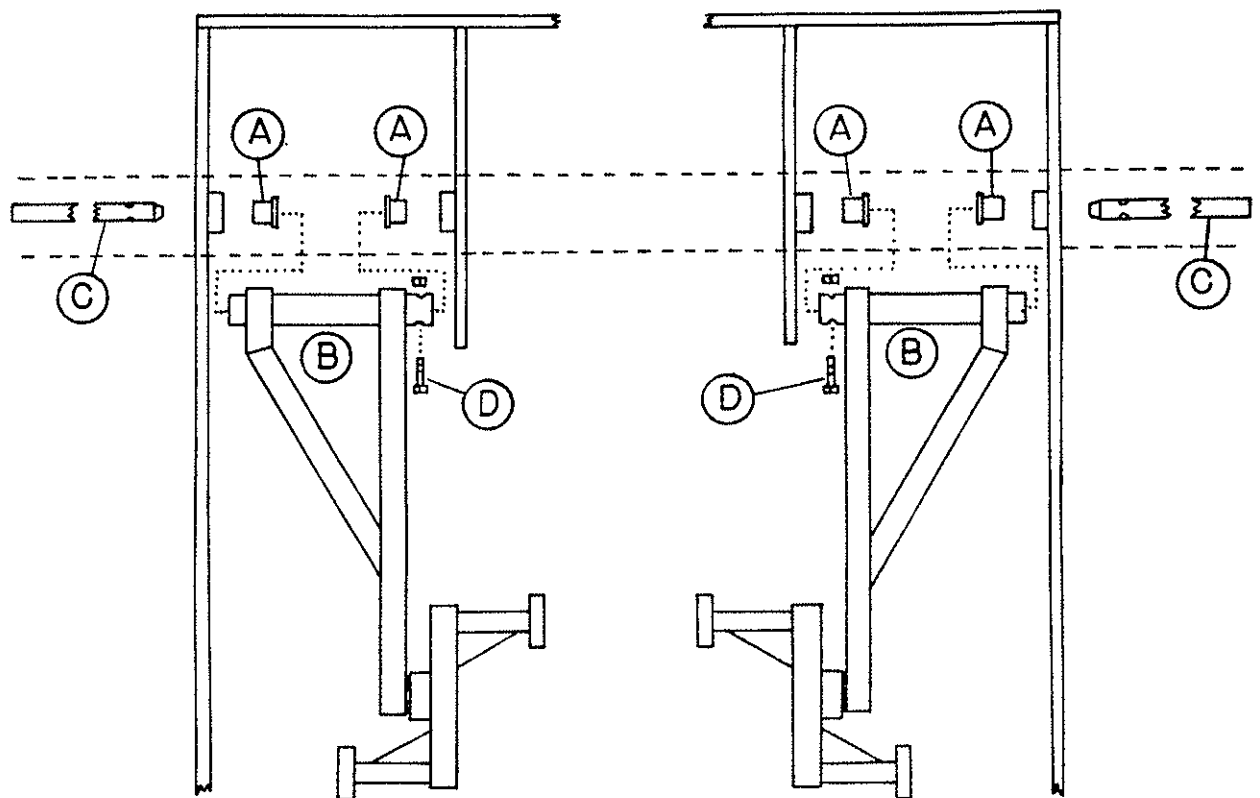
CAUTION !

DANGER !

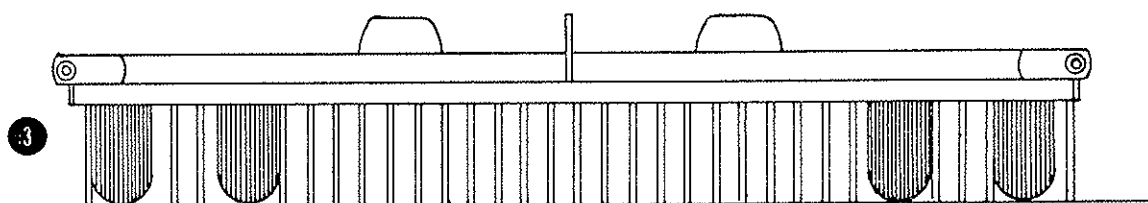
[1]



[2]



[3]



CENTRE FRAME ASSEMBLY

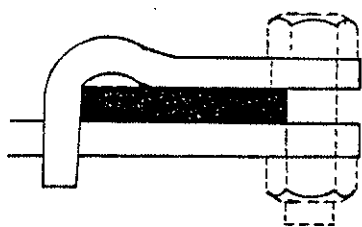
Place main frame on two steel stands according to sketch (1) in order to ease mounting of wheel arms and wheels.

Mount wheel arms according to sketch (2) in following sequence:

- 1) Mount four bronze bushings (A) in the drilled holes in the cultivator frame.
- 2) Lift wheel arms (B) in position and hold with axles (C) pushed in from the outside of the frame.
- 3) Line up holes in axles and wheel arms.
- 4) Lock in position with 1/2" x 3" bolt (D) and locknut.

Mount four 760 x 15 wheels on the hubs with six 9/16" lug bolts each.

Mount tines at position marked on the tool bars. A centre section takes 37 Triple "K" Punch Ball Tines.



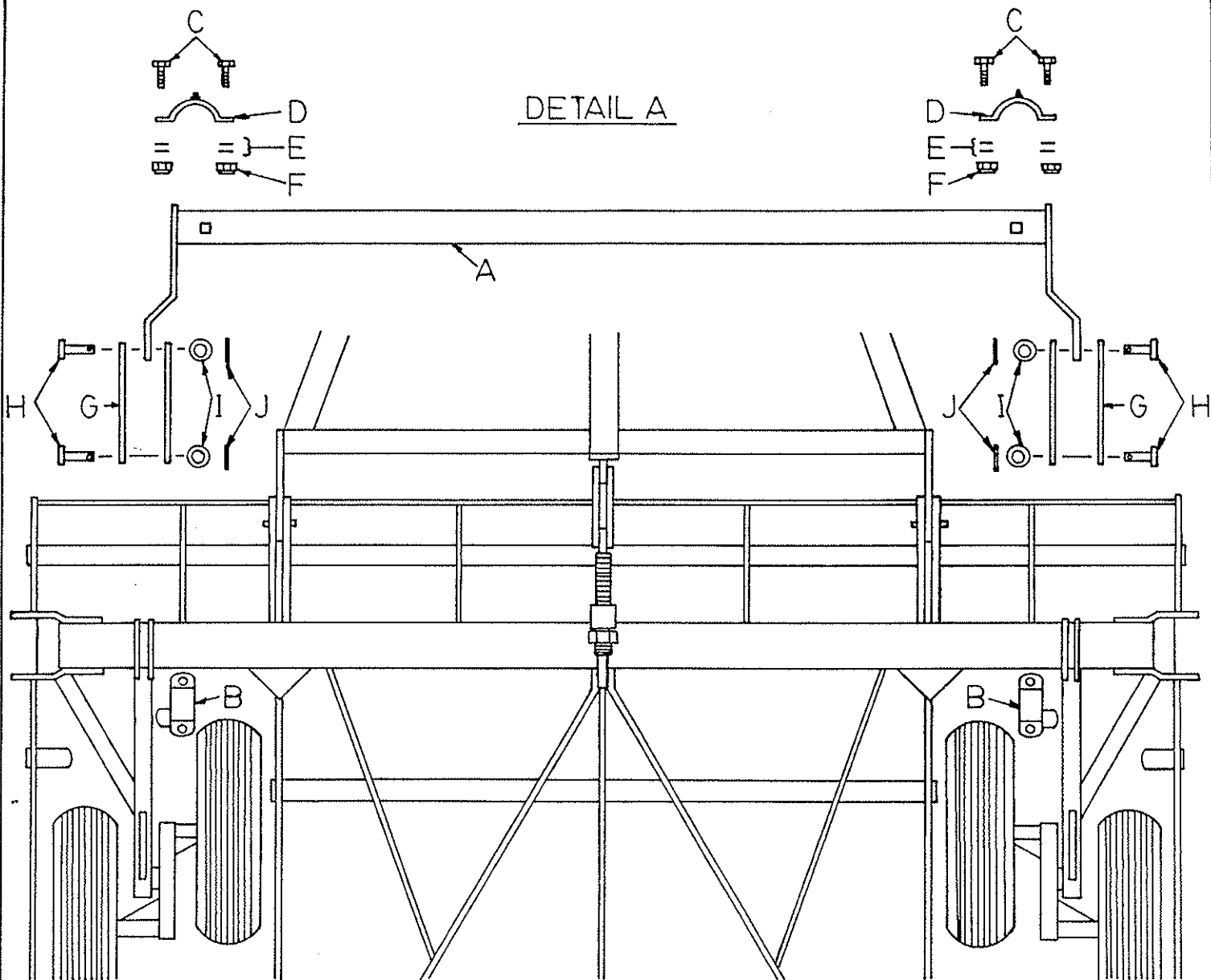
TRIPLE "K" EXCLUSIVE

ONE WRENCH TINE MOUNTING

Assemble eccentric bolt and nut loosely by hand. Tighten eccentric bolt counter-clockwise with 7/8" (22mm) wrench. Tighten nut with same wrench.

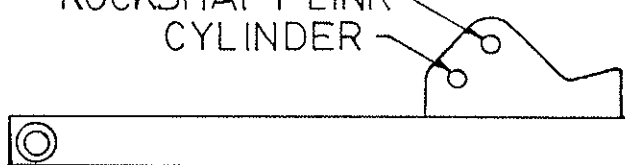
Lower centre frame assembly to the ground on a level area for easy wing mounting sketch (3).

**A CAREFUL OPERATOR
IS THE BEST INSURANCE
AGAINST AN ACCIDENT**



DETAIL B

ROCKSHAFT LINK
CYLINDER



SBC Rockshaft Assembly

1. Place Rockshaft (A) on the center section bearing hangers (B) with the pivot arms facing the rear of the cultivator.
2. Attach the Rockshaft to the frame by placing the 3/4" x 2" bolts (C) through the holes in the top bearing hangers (D). Place 2 shims (E) on each bolt in between the top and bottom bearing hangers. Insert bolts through the bottom bearing hangers and assemble with 3/4 locknuts (F).
3. Attach the Rockshaft links (G) to the Rockshaft with the pins provided (H) as shown on diagram and assemble with B/U washers (I) and roll pins. (J)
4. Attach the Rockshaft links to the wheel arm cylinder uprights in the same manner as in step 3.

Note: Place pin through top hole in the wheel arm upright.

Refer to detail B.

Lubrication: When the cultivator is in use it is important to grease the rockshaft bearings daily. The grease fittings are located on the top bearing hangers (D). The cultivator should be raised and lowered a couple of times to spread the grease thoroughly on the inner surface of the bearings.

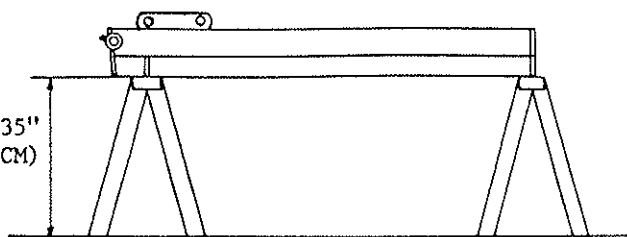
After a certain period of time, the rockshaft may become loose.

If this occurs, the rockshaft should be re-tightened by removing one or both of the shims (E), in the following manner:

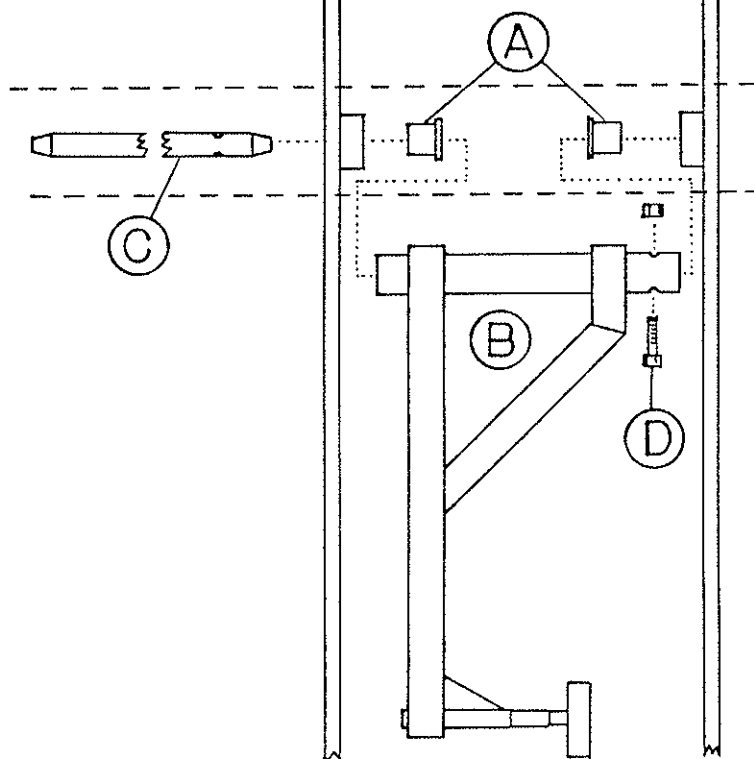
- 1 - Lower cultivator to ground
- 2 - Loosen nuts (F) and remove bolts (C)
- 3 - Remove shims (E) as required
- 4 - Replace bolts (C) and assemble and tighten nuts (F)

[1]

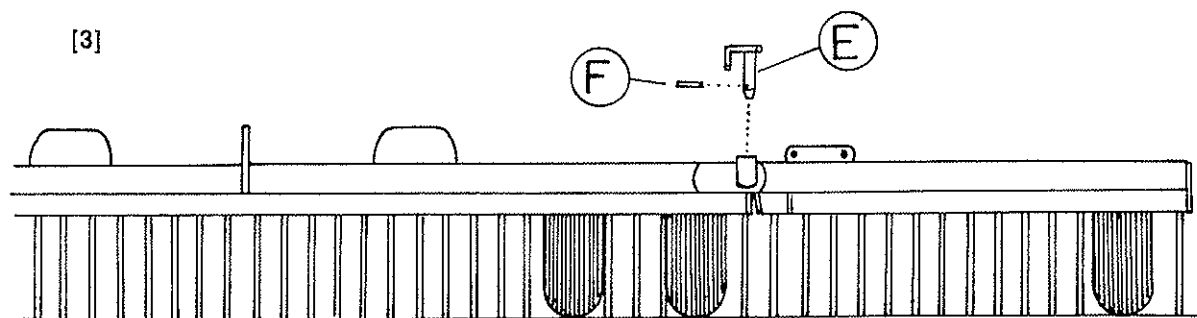
30"-35"
(75-80 CM)



[2]



[3]



WING ASSEMBLY

Place wing frame on two steel stands according to sketch (1) in order to ease mounting of wheelarm and wheel.

Mount wheel arm according to sketch (2) in following sequence:

1. Mount two bronze bushings (A) in the holes drilled in the cultivator frame.
2. Lift wheel arm (B) in position and hold with axle (C).
3. Line up holes in wheel arm and axle.
4. Lock wheel arm in position with one 1/2" x 3" bolt (D) and locknut.

Mount two 950 x 15 wheels on the hubs with six 9/16" lug bolts each.

Mount tines at positions marked (1) on tool bars.

22'-8" Wing takes 16 Triple "K" Punch Ball Tines.

28'-7" Inner Wing takes 24 Triple "K" Punch Ball Tines.

28'-7" Wing takes 25 Triple "K" Punch Ball Tines.

33'-9" Wing takes 33 Triple "K" Punch Ball Tines.

SBC 22'-8", 28'-7" & 33'-9"

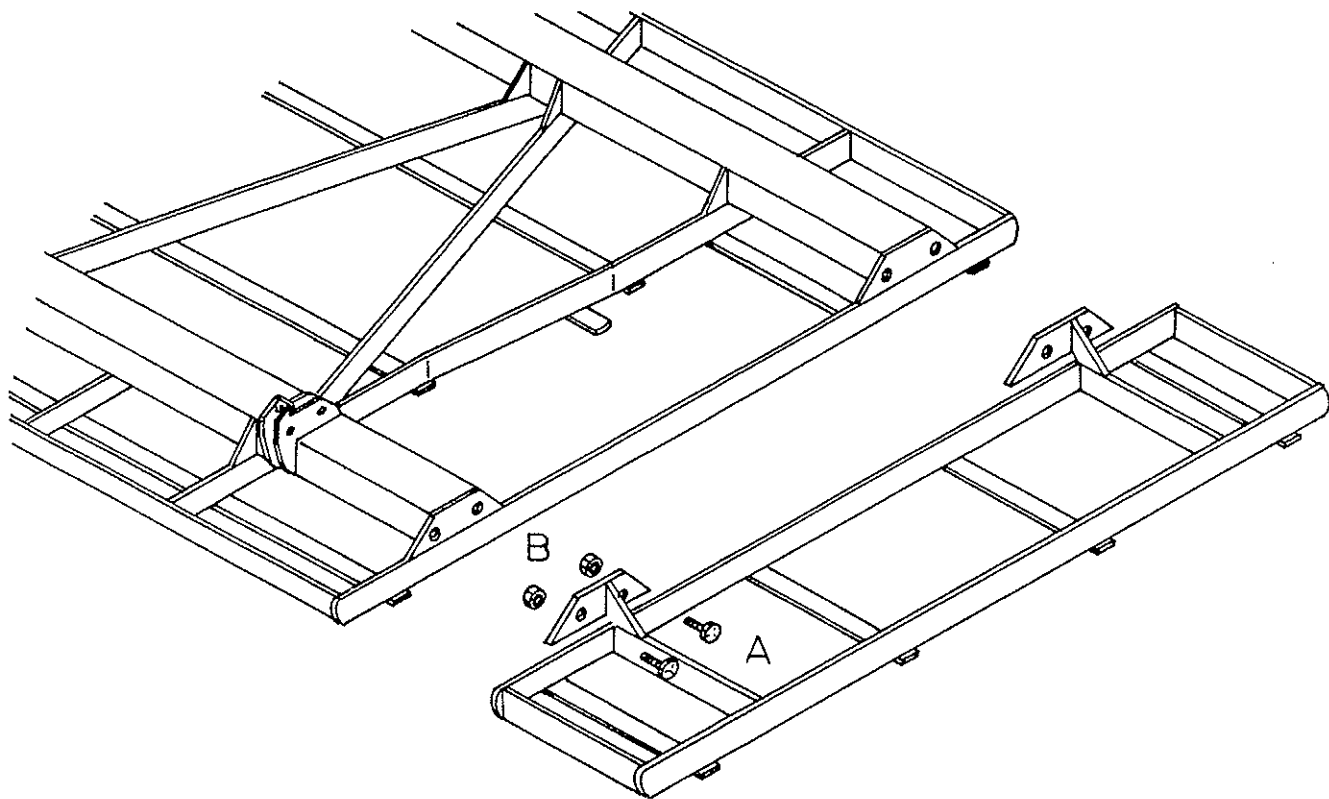
Mount wing assembly to centre frame assembly sketch (3). Hold in position with two hinge pins (E) and lock with two 1/2" x 3/4" bolts (F).

Repeat the wing assembly procedure for the other wing.

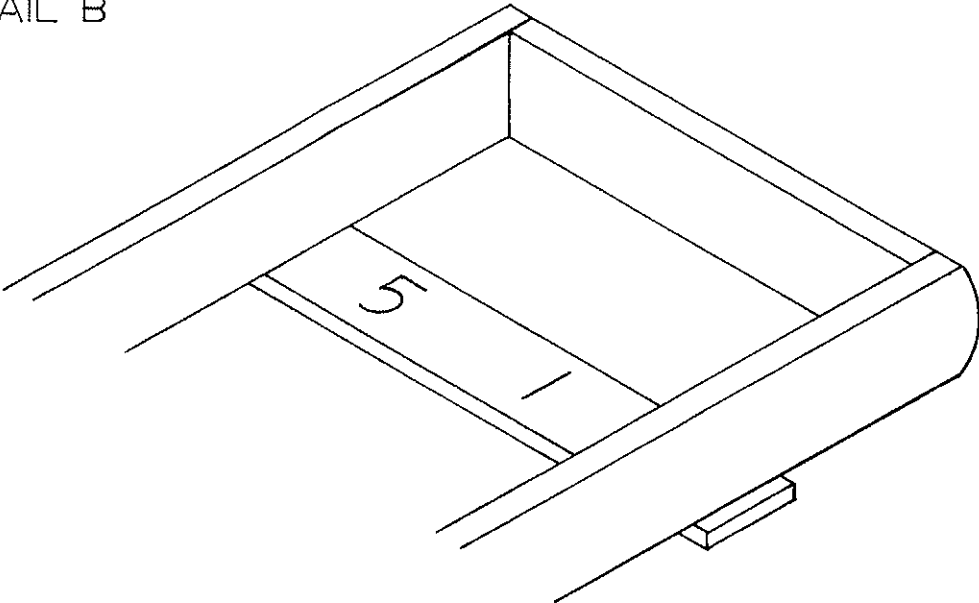
SBC 39'-0"

Mount 28'-7" Inner Wing assembly to centre frame assembly sketch (3). Mount standard 22'-8" wing onto inner wing. Hold wings in position with four hinge pins (E) and lock with four roll pins (F) 3/8 x 2 1/2.

DETAIL A



DETAIL B



BOLT ON WING EXTENSION ASSEMBLY

Detail A

The SBC 22'8" cultivator with a 2'7" bolt-on wing becomes a SBC 25'4" cultivator. The SBC 28'7" cultivator with a 2'7" bolt-on wing becomes a SBC 31'2" cultivator.

Fasten wing extension (A) on outer most portion of wing with four 5/8" x 2" bolts and locknuts (B).

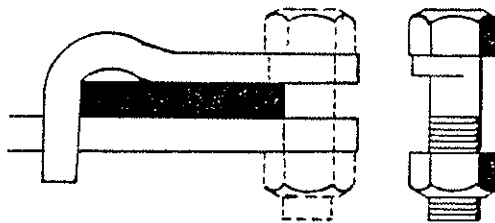
2'7" wing extension takes 4 Triple "K" Punch Ball Tines which are mounted to toolbar according to size of machine.

Detail B

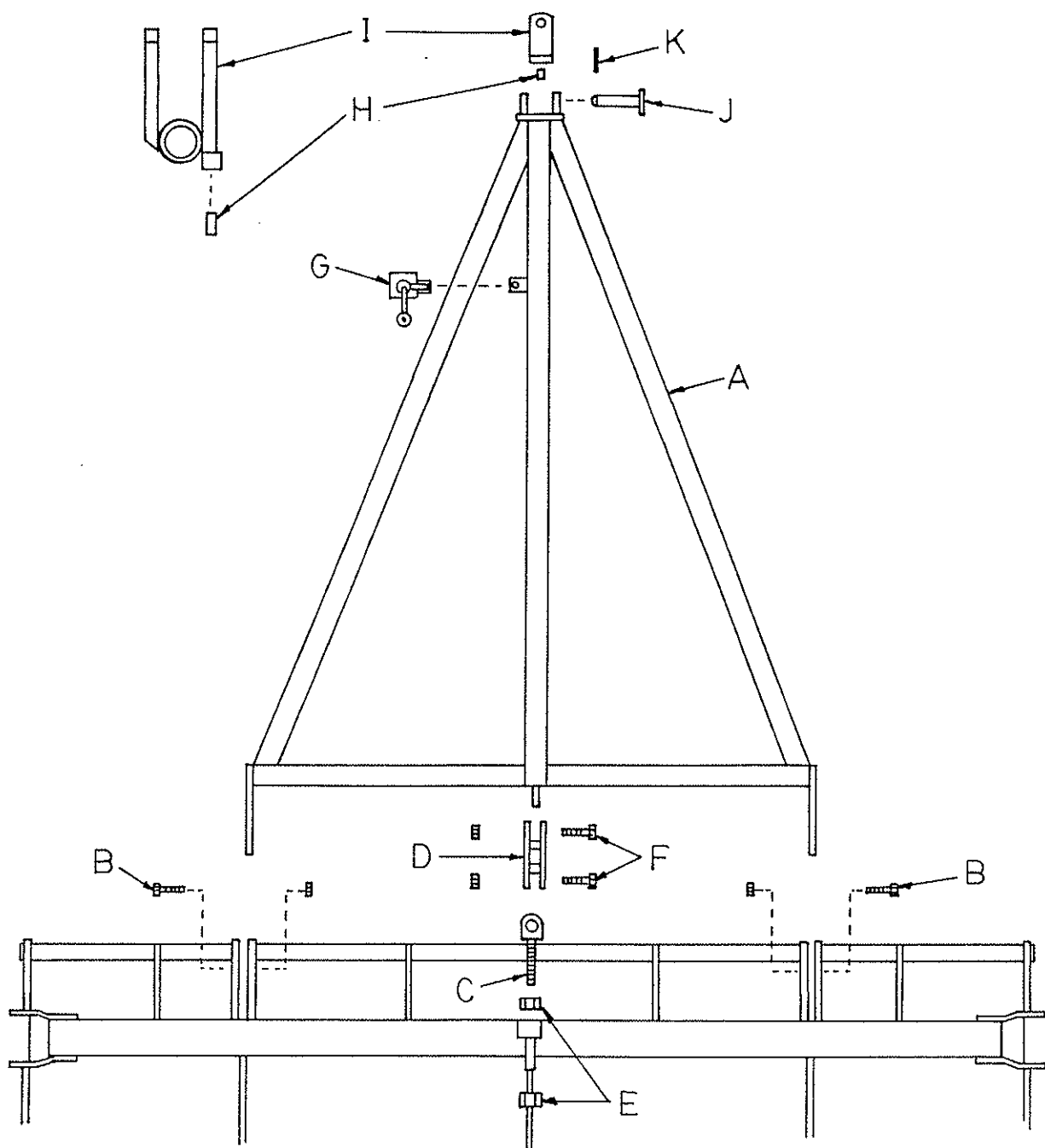
On 25'4" machines, tines are put on marks stamped 5 and on 31'2" machines tines are put on marks stamped 1.

TRIPLE "K" EXCLUSIVE

One Wrench Tine Mounting



Assemble eccentric bolt and nut loosely by hand. Tighten eccentric bolt counterclockwise with 7/8" (22mm) wrench. Tighten nut with same wrench.



**BE ALERT
WATCH WHERE YOU'RE GOING**

DRAW TONGUE ASSEMBLY

DRAW TONGUE ASSEMBLY

Mount draw tongue (A) into centre frame and hold in position with two 1" x 3 1/2" bolts (B) and locknuts. Do not tighten locknuts until tongue assembly is completed.

Mount centre link connection (C & D) between centre frame and draw tongue with two 1 1/2" nuts (E) and two 1" x 3" bolts (F) and locknuts.

Mount jackstand (G) on draw tongue.

DRAW CLEVIS MOUNTING

NOTE: Push green urethane stop (H) into holder at bottom side of draw clevis (I).

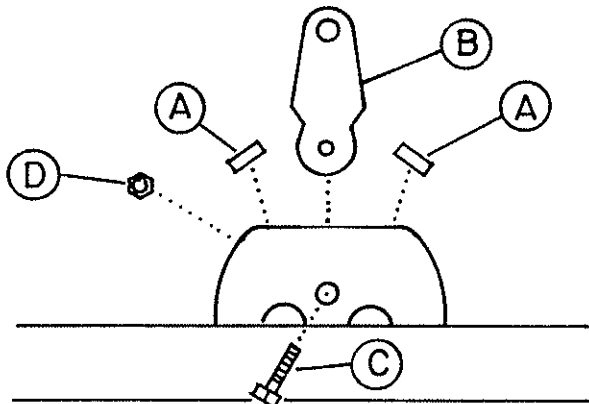
Hold draw clevis (I) in position with draw pin (J) lock in position with one 3/8" x 2 1/2" roll pin (K).

Tighten all bolts and nuts on draw tongue.

**ACCIDENTS DON'T
ALWAYS HAPPEN TO
THE OTHER GUY!**

UPRIGHTS FOR WINGFOLDING CYLINDERS

[1]

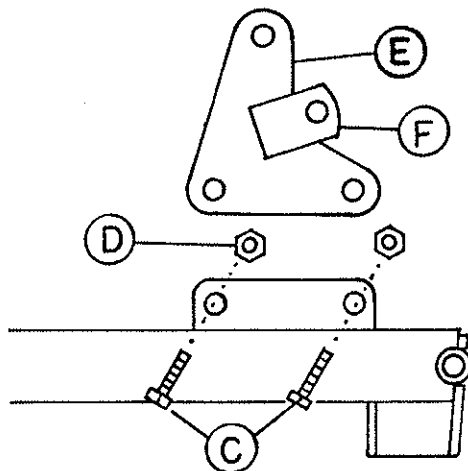


ON CENTRE SECTION (Two pieces) Sketch (1)

NOTE: Assemble two urethane stops (A) in each holder inside the cylinder upright housing.

Place cylinder upright (B) in position, hold in position with 3/4" x 3" bolt (C) and lock with 3/4" locknut (D).

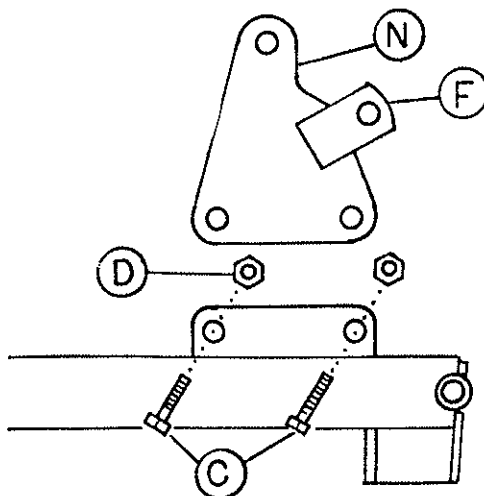
[2]



ON WINGS (Two pieces) Sketch (2)

Place cylinder upright (E) in position on wing with wing lock clevis (F) pointing towards the centre section, hold in place with two 3/4" x 3" bolts (C) and lock with two 3/4" locknuts (D).

[3]



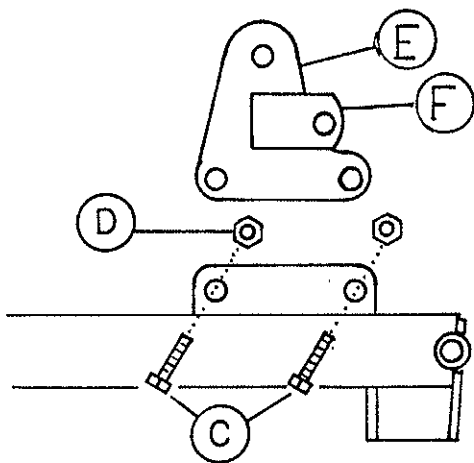
SBC 39-0

INSIDE WING (Two pieces) Sketch (3)

Place cylinder upright (N) in position on wing with wing lock clevis (F) pointing towards the centre section, hold in place with two 3/4" x 3" bolts (C) and lock with two 3/4" locknuts (D).

UPRIGHTS FOR WHEEL OPERATING CYLINDERS

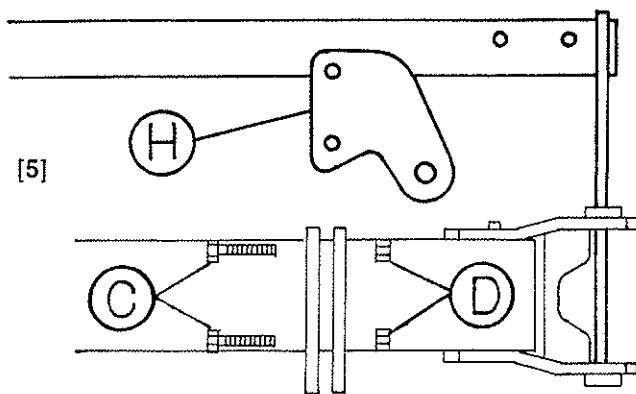
[4]



OUTSIDE WING (Two pieces) Sketch (4)

Place cylinder upright (E) in position on wing with wing lock clevis (F) pointing towards the centre section, hold in place with two 3/4" x 3" bolts (C) and lock with two 3/4" locknuts (D).

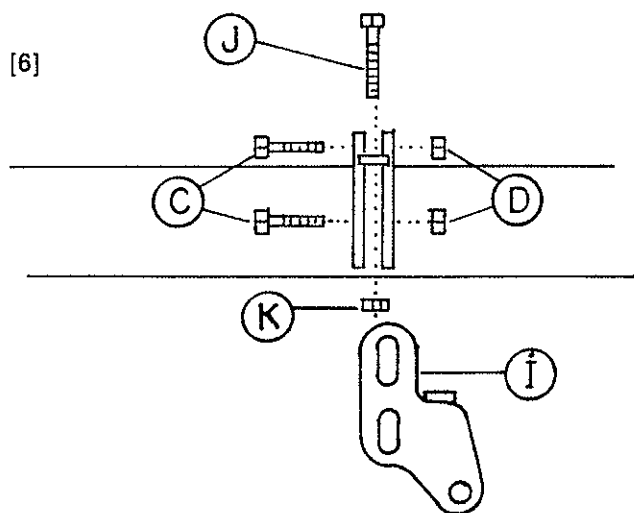
[5]



CENTRE SECTION (Two pieces) Sketch (5)

Place cylinder upright (H) on centre section with the cylinder mounting hole pointing to the rear of the cultivator, hold in place with two 3/4" x 3" bolts (C) and lock with two locknuts (D).

[6]



WING (Two pieces) Sketch (6)

Slide cylinder upright (I) into position on wing with the cylinder mounting hole pointing to the rear of the cultivator, hold in position with two 3/4" x 3" bolts (C) and lock with two locknuts (D).

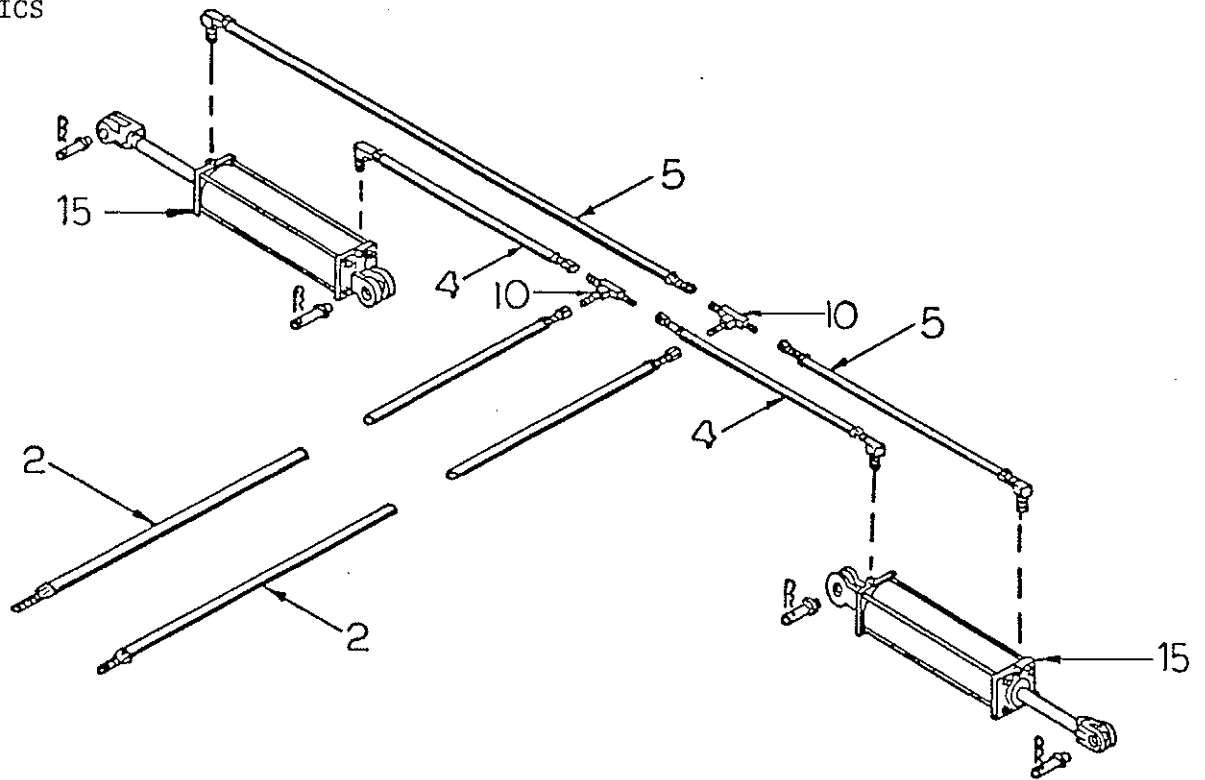
Mount 3/4" x 4" depth adjustment bolts (J) in threaded plate and lock with 3/4" jamnut (K).

SLOW MOVING SIGN

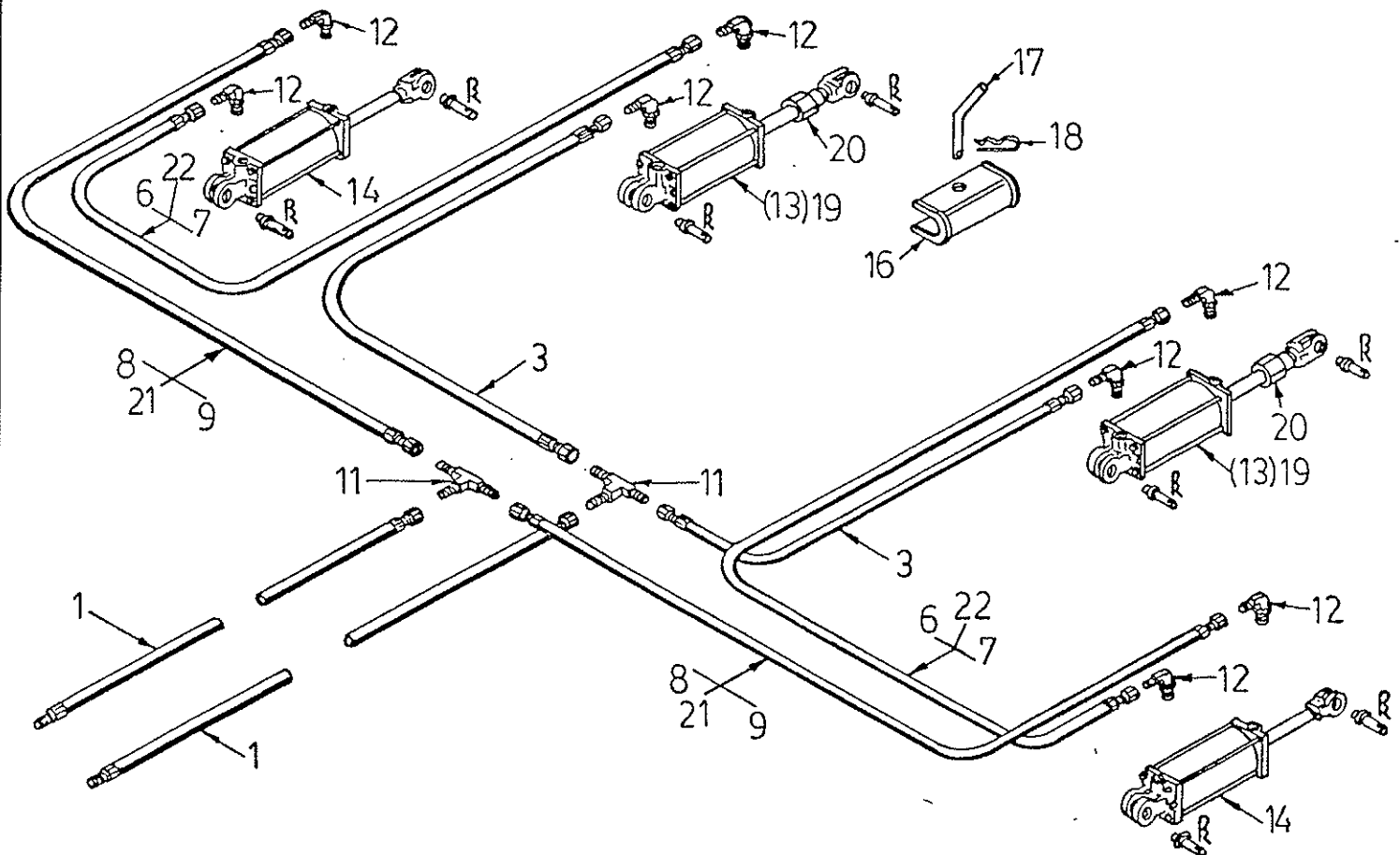
Assemble slow moving sign and mounting plate.

Mount slow moving sign assembly in bracket on the rear beam of the centre section.

WING HYDRAULICS



WHEEL HYDRAULICS



SBC HYDRAULICS

SKETCH NO.

DESCRIPTION

1	1/2" Hose Assembly 171" - All models
2	3/8" Hose Assembly 236" - All models
3	3/8" Hose Assembly 81" - All models
4	3/8" Hose Assembly 32" - All models
5	3/8" Hose Assembly 60" - All models
6	3/8" Hose Assembly 96" - 23', 25'
7	3/8" Hose Assembly 112" - 28', 31'
8	3/8" Hose Assembly 145" - 23', 25'
9	3/8" Hose Assembly 160" - 28', 31'
10	Union Tee 3/8" JIC 37° - All models
11	Union Tee 1/2" JIC 37° - All models
12	90 Elbow 1/2" O-Ring x 1/2" JIC 37° Male - All models
13	Cylinder 3 1/4" x 8" (Prince) - Center Section
14	Cylinder 3" x 8" (Prince) - Wings
15	Cylinder 3 1/2" x 24" (Prince) - Wing Fold
16	Transport Stop
17	Pin
18	Hair Pin
19	Cylinder 3 1/4 x 8 with Mech. Stop
20	Mechanical Depth Stop
21	3/8 Hose Assembly 195"
22	3/8 Hose Assembly 148"

3.5" x 24" Cylinders no. 15 are positioned on rear of cultivator with rams pointing to outside of cultivator and port holes upwards.

3.25" x 8" Cylinders no. 13&19 are mounted on centre section with rams pointing towards wheels and ports in top position.

3 x 8" Cylinder no. 14 are mounted on each wing with rams pointing towards the wheel and ports in top position.

Lock hoses to cultivator with clamps supplied.

TO TIGHTEN J.I.C. FLARE CONNECTIONS:

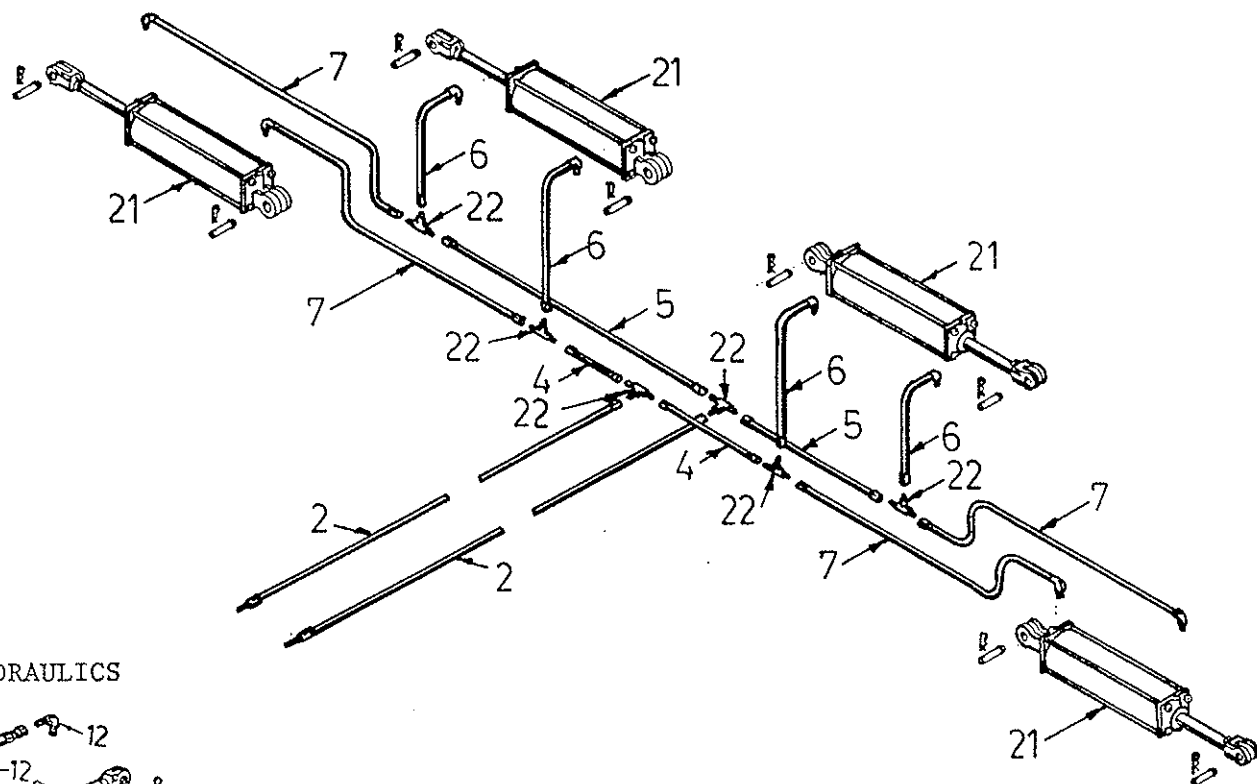
A. Finger tighten as much as possible.

B. 1/6 Turn (one flat section on hex) is sufficient to seal connection.

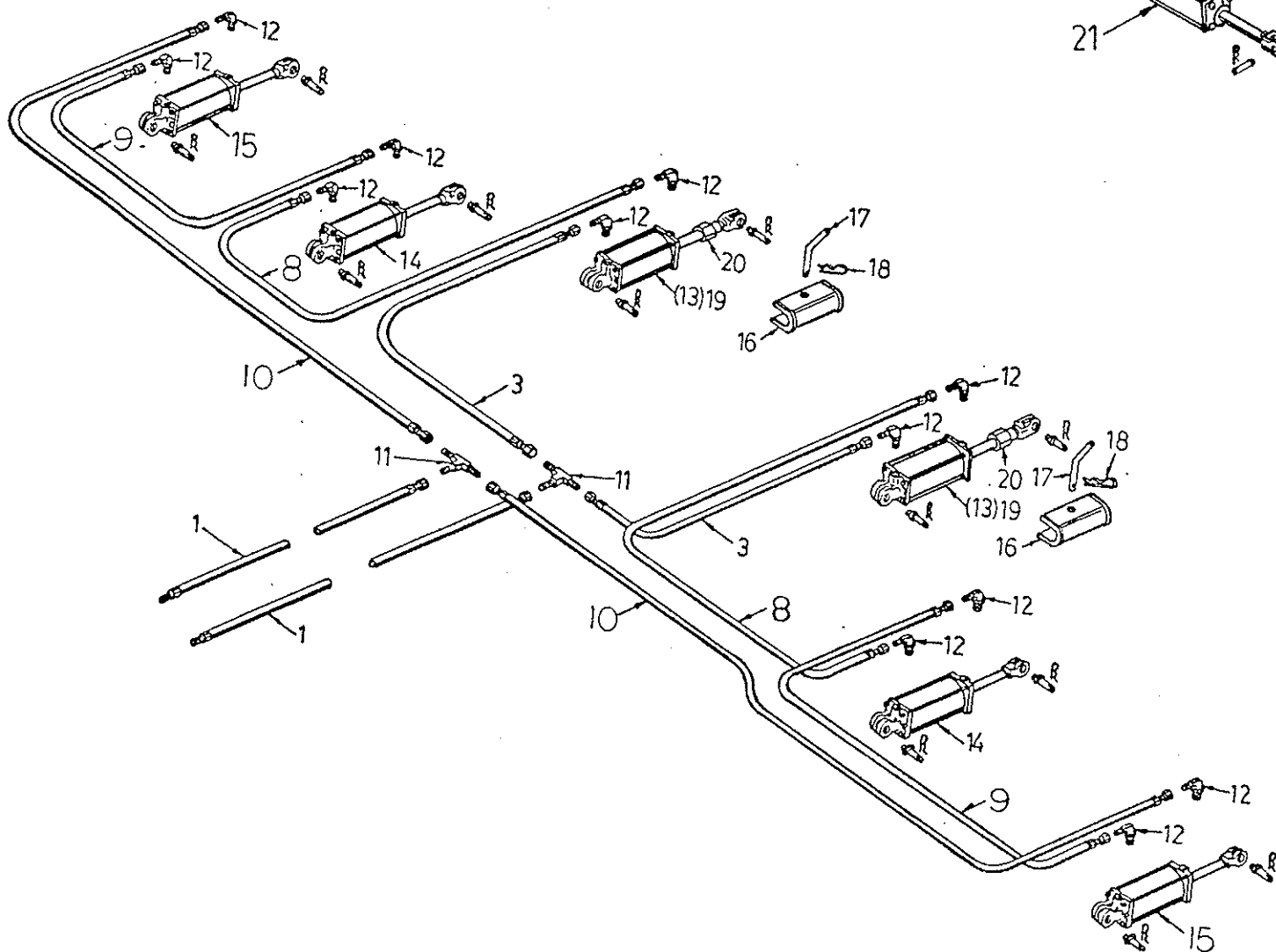
Over tightening could crack the swivel nut.

WING HYDRAULICS

SBC 39' Q"



WHEEL HYDRAULICS



SBC HYDRAULICS 39'

SKETCH NO.

DESCRIPTION

1	1/2" Hose Assembly 171"
2	3/8" Hose Assembly 236"
3	3/8" Hose Assembly 81"
4	3/8" Hose Assembly 32"
5	3/8" Hose Assembly 60"
6	3/8" Hose Assembly 20"
7	3/8" Hose Assembly 110"
8	3/8" Hose Assembly 112"
9	3/8" Hose Assembly 120"
10	3/8" Hose Assembly 248"
11	Union Tee 1/2" JIC 37°
12	90 Elbow 1/2" O-Ring x 1/2" JIC 37° Male
13	Cylinder 3 1/2" x 8" (Prince) - Center Section
14	Cylinder 3 1/4" x 8" (Prince) - 1st Wing
15	Cylinder 3" x 8" (Prince) - 2nd Wing
16	Transport Stop
17	Pin
18	Hair Pin
19	Cylinder 3 1/2" x 8" with Mechanical Stop
20	Mechanical Depth Stop
21	Cylinder 3 1/2 x 24 (Prince) - Wing Fold
22	Union Tee 3/8" JIC 37°

3.5" x 24" Cylinders no. 21 are positioned on rear of cultivator with rams pointing to outside of cultivator and port holes upwards.

3.5" x 8" Cylinders no. 13&19 are mounted on centre section with rams pointing towards wheels and ports in top position.

3.25" x 8" Cylinder no. 14 are mounted on each inside wing with rams pointing towards the wheel and ports in top position.

3" x 8" Cylinder no. 15 are mounted on each outside wing with rams pointing towards the wheels and ports in top position.

Lock hoses to cultivator with clamps supplied.

TO TIGHTEN J.I.C. FLARE CONNECTIONS:

A. Finger tighten as much as possible.

B. 1/6 turn (one flat section on hex) is sufficient to seal connection.

Over-tightening could crack the swivel nut.

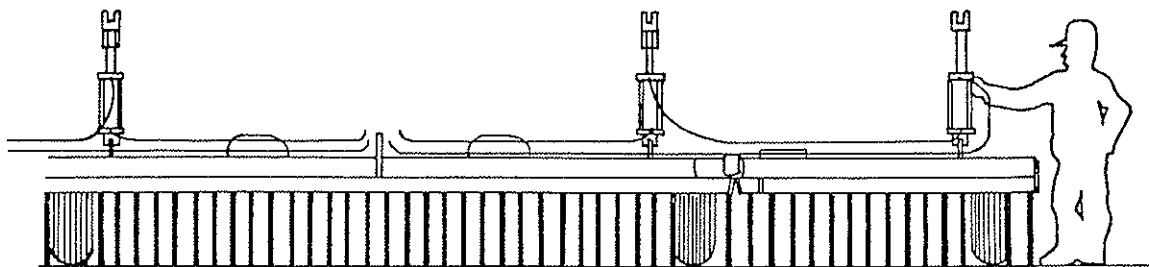
OPERATING INSTRUCTIONS



- (1) For safety reasons the following operations should only be carried out with wings in lowered position.
- (2) Attach cultivator draw tongue clevis to tractor drawbar and pin.
- (3) Hook up hydraulic lines to tractor with proper connectors.

NOTE: 3/8" Hoses activate wings.
1/2" Hoses activate wheels.

- (4) Adjust mechanical stops on cent. sect. cylinders as close to clevis as possible.
- (5) To remove air from wheel cylinders use the following procedure:
 - a) Position cylinders according to sketch below with rod clevises pointed vertically.
 - b) Activate cylinders through two full cycles of extension and retraction.
 - c) Extend cylinders completely and hold lever while relief valve squeals for a minimum of 30 seconds.
 - d) Activate cylinders to full extension and retraction, they should now move smoothly in unison. If not repeat step (C) as there may still be some air in the lines.



NOTE: If wheels do not work in unison, go back to hydraulic line layout (page 12 or 14) and check hoses for incorrect assembly.

- (6) If wings are in folded position with uncharged cylinders wings should be lowered to the ground in a safe manner. Do not use hydraulics to lower wings.
- (7) Activate wing hydraulic cylinders, until in full transport position. Lower and raise wings two or three times to eliminate all air from wing hydraulics.

NOTE: When wing hydraulics are operated no one should be in area where line or hydraulic failure could allow wing to fall causing injury. This procedure should be followed at all times.





- (8) Actuate wing hydraulics to raise wings to transport position and manually lock wings with pins supplied. (see page 20.)

- (9a) Kongskilde Prince Cylinders with Mechanical Stops
Activate wheel hydraulics to transport position and lock by placing wheel locks over centre section transport cylinders and locking in position with supplied pins, lower cultivator to stop.

(see page 20).

It may be necessary to turn down the mechanical stops a few turns to allow the locks to fit.



NOTE: Operations no. 8 & 9 should be followed at all times for safe transport.

- (10) Your Triple K is now ready for safe transport.

FOR FIELD SETTINGS

- (11) Remove wing lock pins.

- (12) Activate hydraulics to lower wings.

NOTE: Cylinders must be fully extended to allow wing float.

- (13) Kongskilde Prince Cylinders
Remove transport wheel locks and store in the tractor box.

- (14) Set mechanical wheel cylinder stops on $3\frac{1}{2}$ OR $3\frac{1}{4}$ cylinders to required working depth. Both stops to be set at same depth.

- (15) Activate hydraulics to set cultivating depth.

- (16) Cultivate a short distance at cultivating speed and stop.

- (17) Cultivator frame sections should be level with ground front to back and side to side.

- (18) If cultivator is not level with ground front and back, adjust 1 1/2" nuts (E page 6) on rear centre of draw tongue to bring cultivator to level position.

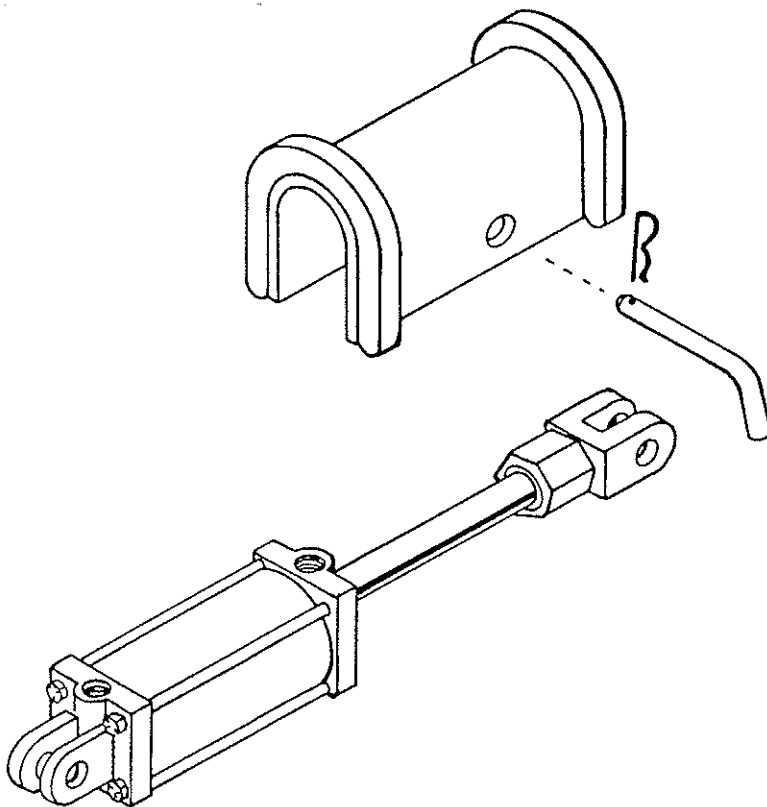
- (19) If cultivator wings are not level from side to side, adjust 3/4" x 4" bolt (J page 7) to bring wings level with centre section.

- (20) Repeat operations 16, 17, 18 and 19 until cultivator is working in a level position.

NOTE: After approximately 8 hours of use, re-tighten all nuts and bolts on cultivator.

Before disconnecting Hydraulic lines, relieve all hydraulic pressures.

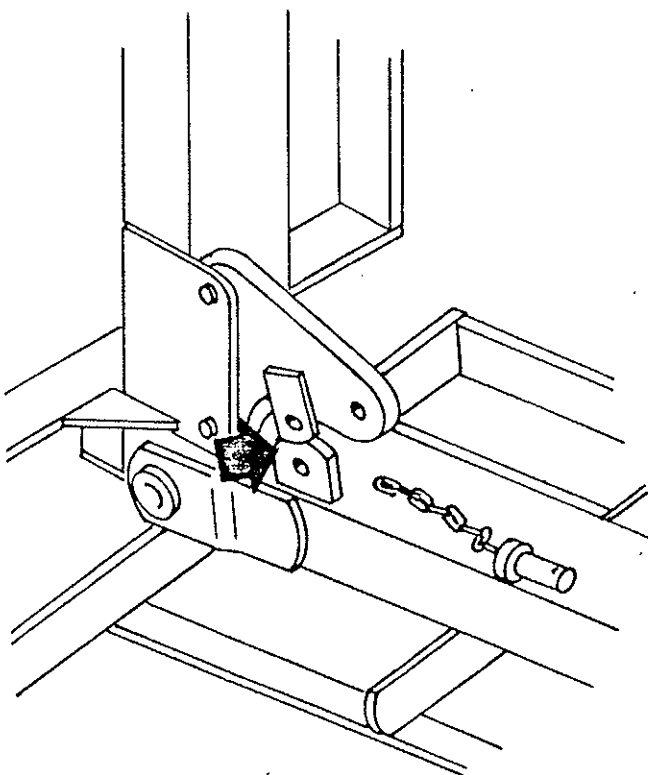
WHEEL LOCK FOR TRANSPORT CYLINDERS



Insert a safety lock over each centre section cylinder rod and fasten the pins as shown. Slowly ease the cultivator down until the wheel lock is wedged firmly in place.

When cultivating the safety locks should be stored in the tractor box or in a place that will not interfere with the safe operation of the equipment.

FOR SAFE TRANSPORT



When the wings are raised for transport position, insert chained lock pin and secure with supplied lynch pin to insure that wings will not fall uncontrollably.

HYDRAULIC TROUBLE SHOOTING CHART

<u>Problem</u>	<u>Cause</u>	<u>Remedy</u>
1) Cultivator cylinders do not work in unison. Cylinders "spongy"	Air in system	Raise cultivator to highest transport position. Hold the hydraulic lever on the tractor in the "raise" position for approx. 30 seconds. Flow passes through the cylinder bypass ports to flush air out of the system.
2) Wing cylinder contracts when master extends.	Hose connections wrong	Check circuit page 12,14.
3) Wing cylinders stroke further than master cylinders when retracting wings dig too deep.	(a) Hose connections wrong (b) Cylinder sizes or locations wrong	Check circuit page 12,14. Centre section cyl. 3.5 or 3.25 x 8 Wing cyl. 3.25 or 3 x 8
4) One section of cultivator settles down in use.	(a) System not being rephased. (b) External leak from cylinder, hose or fitting (c) Internal leak in cylinder	When the cylinders are extended fully each cylinder bypasses a small amount of oil to allow other cylinders to catch up. This rephasing is done each time the cultivator is raised fully to the top and must be done periodically and is recommended at each end of the field. Repair leaking component Install new cylinder seal kit
5) Entire cultivator settles.	(a) Tractor valve leaking back (b) External leak (c) Wing cylinders and at least one master leaking internally.	To check remove hose from tractor when cultivator is raised. This eliminates tractor valve from circuit CAUTION: MAKE CERTAIN YOUR TRACTOR CONNECTORS SAFELY ALLOW THIS OPERATION Install pilot operated check valve. Repair Replace seal kit. Inspect for dirt in the system.

HYDRAULIC TROUBLE SHOOTING CHART

<u>Problem</u>	<u>Cause</u>	<u>Remedy</u>
6) Cultivator settles in transport or parked.	Not using transport block	The hydraulic system is not intended to hold the cultivator up permanently. A slow settling when not in use is normal
7) Cylinders will not rephase.	(a) Dirt blocking bypass ports in cylinder. (b) Faulty cylinder	Air pressure can be used to determine which cylinder will not bypass when extended Rephasing cylinders and repair parts must be used in this service
8) Air returns to system causing problems 1,4,5 to recur	(a) Air entering system (b) See item 7	Check tractor oil level Check tractor hydraulic pump See item 7
NOTE: A MIXTURE OF OIL AND AIR FORMS A FOAM WHICH MAY GIVE UNEXPECTED RESULTS. IT MAY TAKE A FEW HOURS USE BEFORE ALL FOAM IS EXPELLED.		
9) Centre section not level or goes out of level in use	(a) Rockshaft shear bolt broken (b) Rockshaft bent	Replace Always adjust both stops the same. See dealer for instructions on straightening the shaft in place. Always adjust both stops the same.
10) Both centre sections and one wing settle together. Remaining wing raises. (or stays at the top)	Internal leak in the master cylinder on the side on which the wing raises.	Install new seal kit.

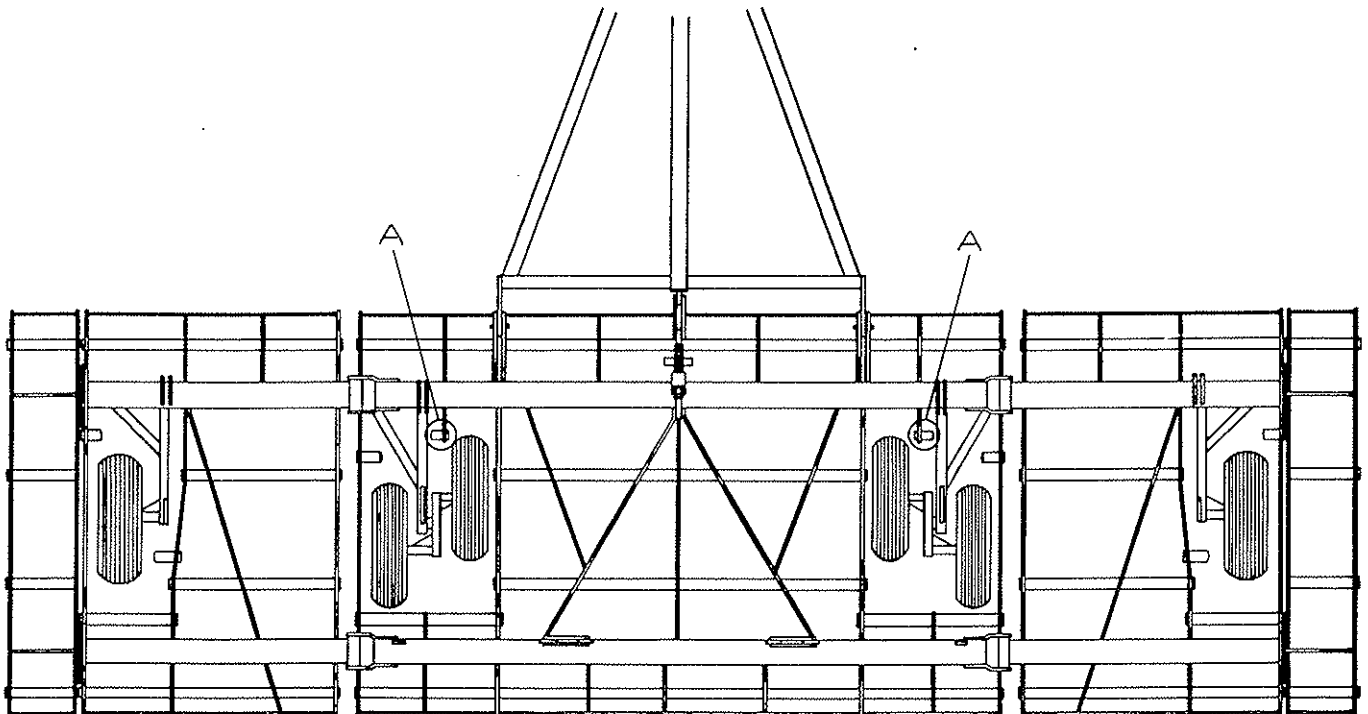
SBC WITH HIGH CLEARANCE TINES

SBC Cultivators can be fitted with high clearance tines on both regular and wide tine spacings.

When mounting high clearance tines on regular spacing, place the tines at locations marked "S" on the toolbar.



Please notice that the 2 tines shown in position A (below), must not be mounted on the SBC centre section. If the 2 tines are mounted they will interfere with the hydraulic cylinders and could cause damage to both tines and cylinders.

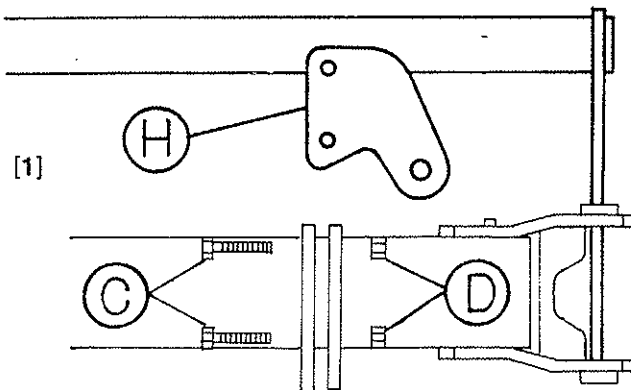


UPRIGHTS FOR WHEEL OPERATING CYLINDERS



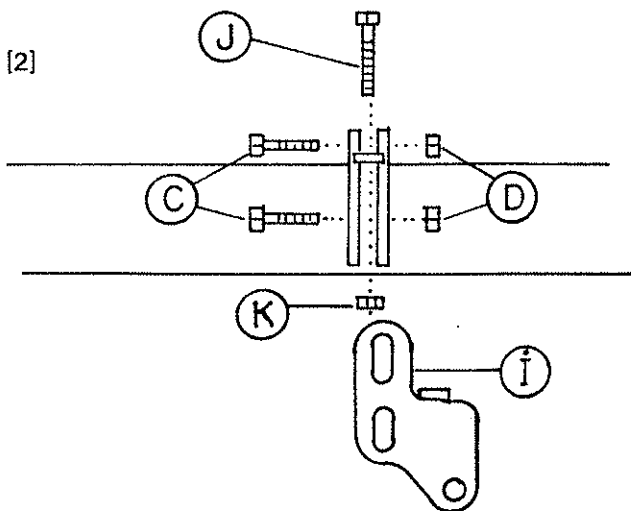
CYLINDER UPRIGHT FOR HIGH TINES

SBC Cultivators purchased as high tine models come equipped with the proper cylinder uprights for center section and wing wheel arms. However, if you are converting your SBC cultivator from regular S tines to high clearance tines, it is necessary for you to obtain wheel cylinder uprights for high tine models from your dealer. Failure to install the proper uprights could cause damage to the cultivator when transporting and will not allow correct depth adjustment in the field. See diagrams below for installation.



CENTRE SECTION (Two pieces) Sketch (1)

Place cylinder upright (H) on centre section with the cylinder mounting hole pointing to the rear of the cultivator, hold in place with two 3/4" x 3" bolts (C) and lock with two locknuts (D).



WING (Two pieces) Sketch (2)

Slide cylinder upright (I) into position on wing with the cylinder mounting hole pointing to the rear of the cultivator, hold in position with two 3/4" x 3" bolts (C) and lock with two locknuts (D).

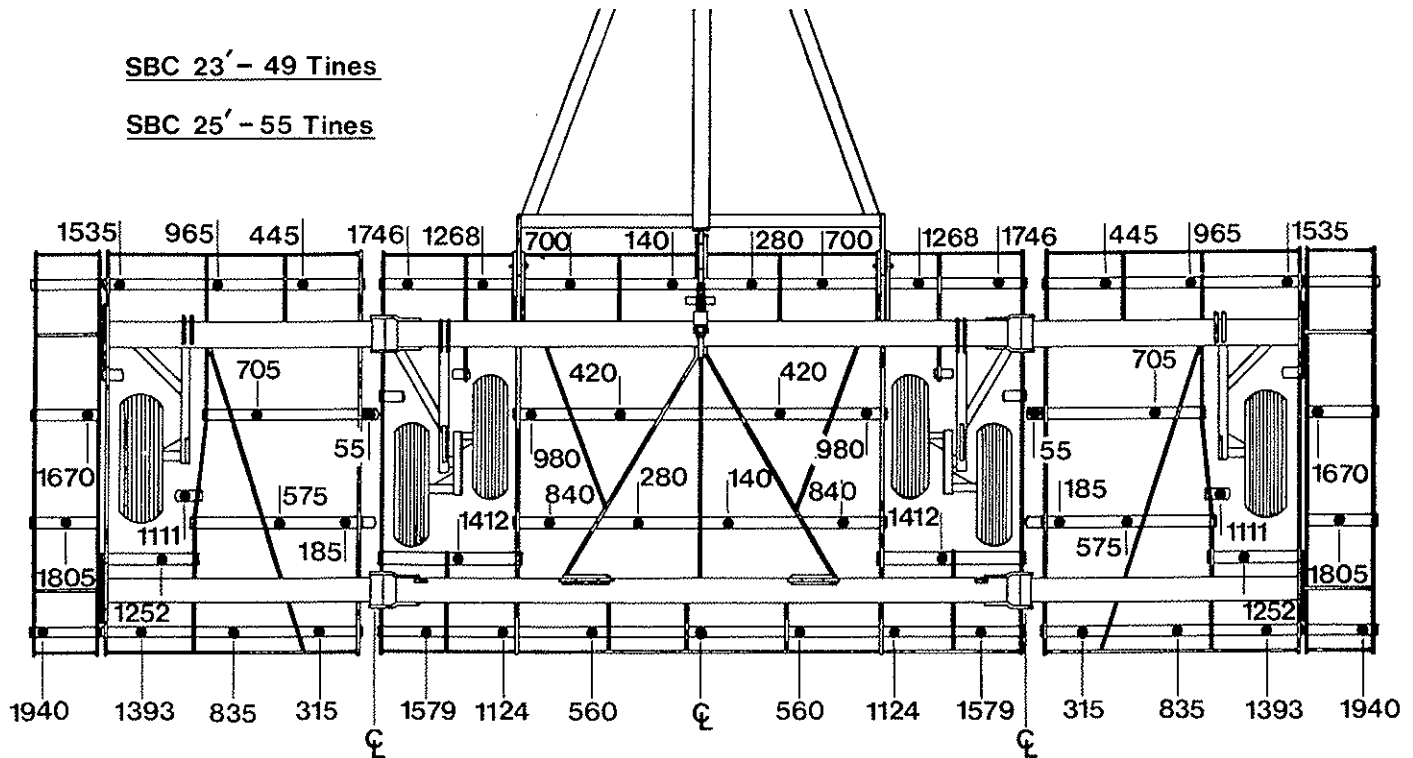
Mount 3/4" x 4" depth adjustment bolts (J) in threaded plate and lock with 3/4" jamnut (K).

Tine Locations For High Clearance Tines

In order to set up SBC cultivators on the wide tine spacing for high clearance tines, please locate the tines in the positions shown. Centre section tine locations are measured from the centre line of the frame. Wing tine locations are measured from the centre line of the hinge pin.

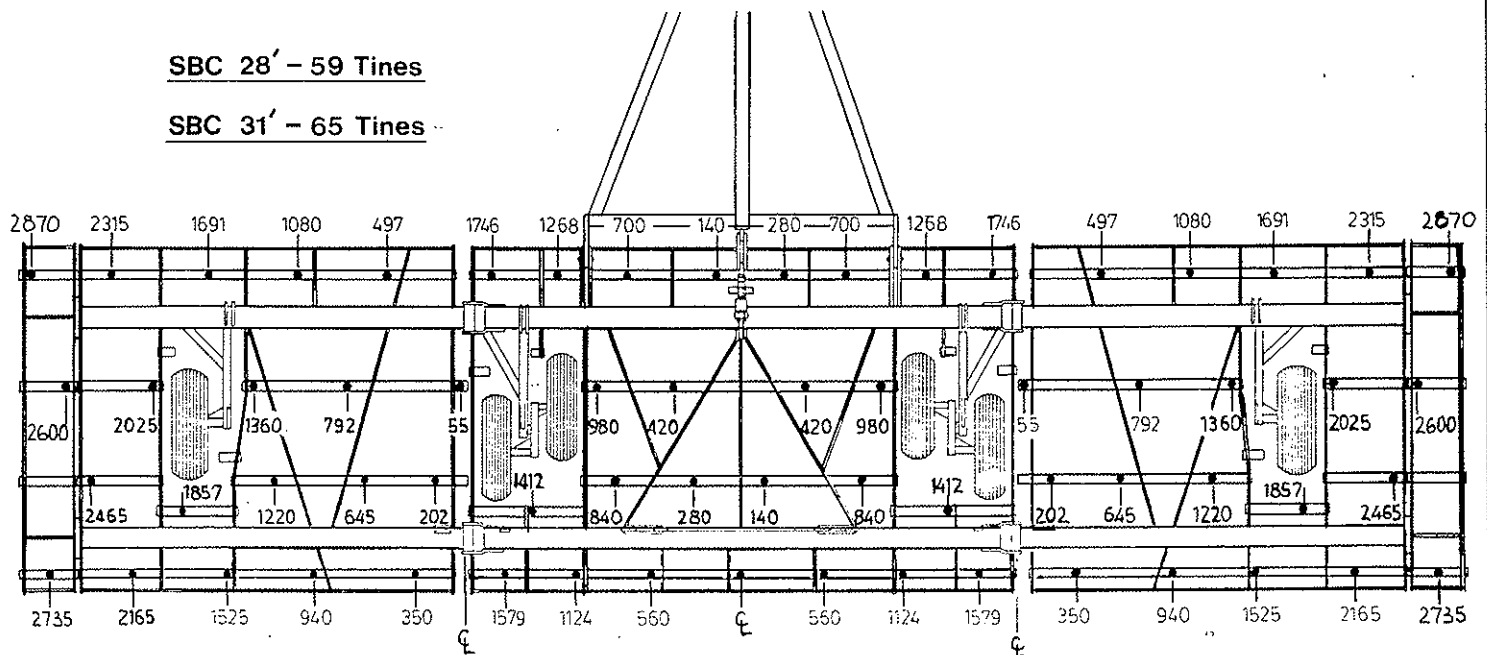
SBC 23' - 49 Tines

SBC 25' - 55 Tines



SBC 28' - 59 Tines

SBC 31' - 65 Tines



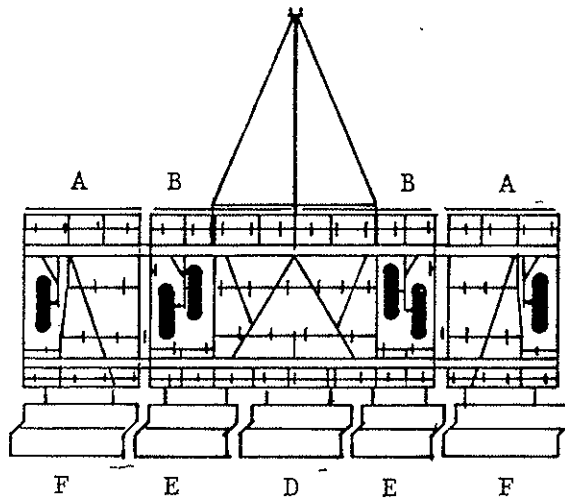
[illegible]

MEASURE FROM
CENTER SECTION
CENTER LINE

MEASURE FROM
WING HINGE
CENTER LINE

[illegible]

OPTIONAL EQUIPMENT MOUNTING PATTERNS



SBC 22'-8"

Levelling Bar

A SPABC 22'8" 57" (114cm)

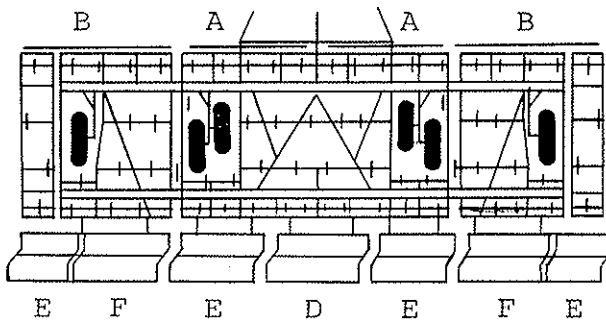
B SPABC 12'1" 71" (180cm)

Double Rotaharrow

D RDBC 12'1" 6 Bank

E RDGB 24-18" 5 Bank

F RDGB 32-22" 7 Bank



SBC 25'4"

LEVELLING BAR

A - SPABC 12'1"

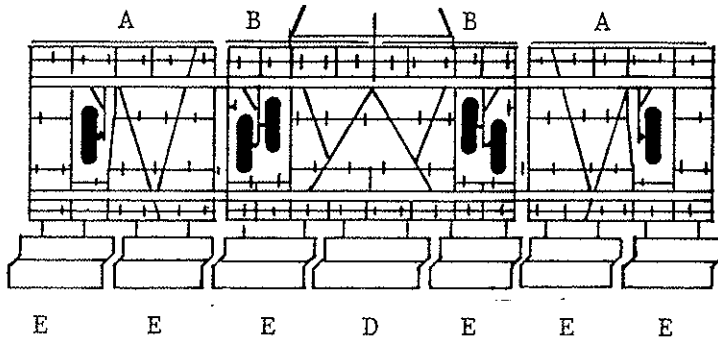
B - S 2115

ROTAHARROW

D - RDBC 12'1" 6 BANK

E - RDGB 24-18" 5 BANK

F - RDBC 1612 3 BANK



SBC 28'-7"

Levelling Bar

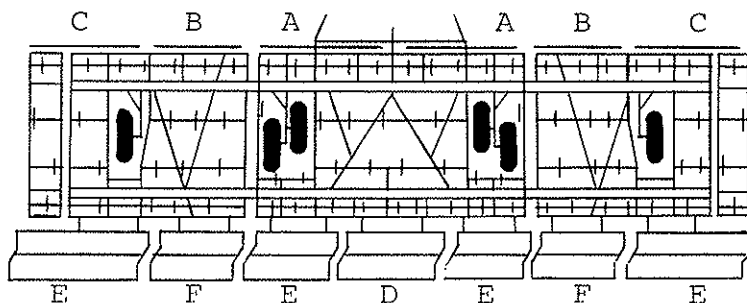
A SPABC 28'7" 91" (230cm)

B SPABC 12'1" 71" (180cm)

Double Rotaharrow

D RDBC 12'1" 6 Bank

E RDGB 24-18" 5 Bank



SBC 31'2"

LEVELLING BAR

A - SPABC 12'1"

B - SPAGB 3222

C - SPAGB 2418

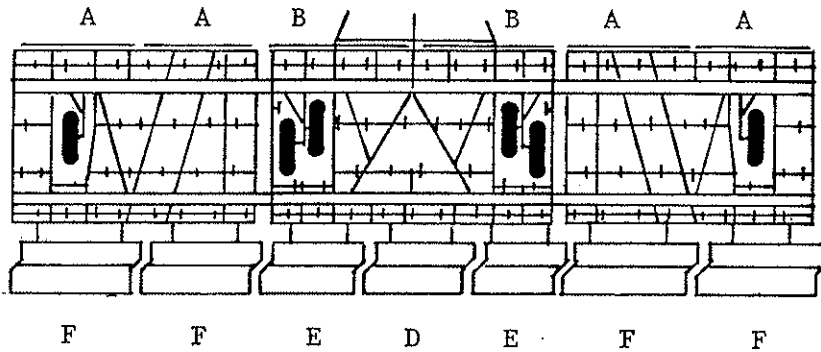
ROTAHARROW

D - RDBC 12'1" 6 BANK

E - RDGB 24-18" 5 BANK

F - RDBC 3222 7 BANK

OPTIONAL EQUIPMENT MOUNTING PATTERNS



SBC 33'-9"

Levelling Bar

A SBABC 33'9" 61" (155cm)

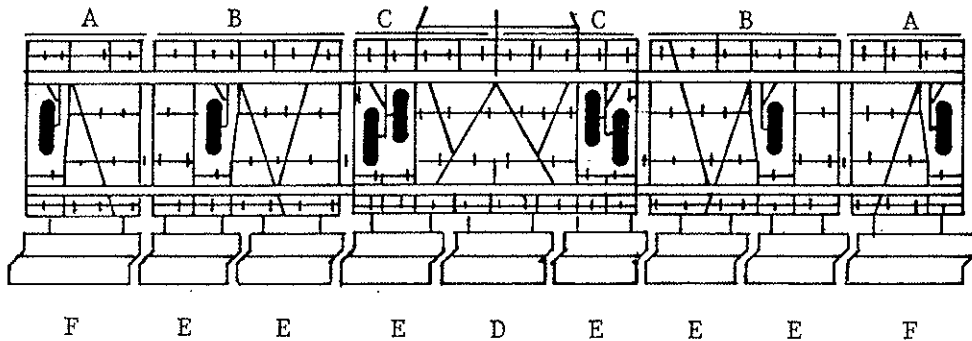
B SPABC 12'1" 71" (180cm)

Double Rotaharrow

D RDBC 12'1" 6 Bank

E RDGB 24-18" 5 Bank

F RDGB 32-22" 7 Bank



SBC 39'-0"

Levelling Bar

A SPABC 22'8" 57" (144cm)

B SPABC 28'7" 91" (230cm)

C SPABC 12'1" 71" (180cm)

Double Rotaharrow

D RDBC 12'1" 6 Bank

E RDGB 24-18" 5 Bank

F RDGB 32-22" 7 Bank

