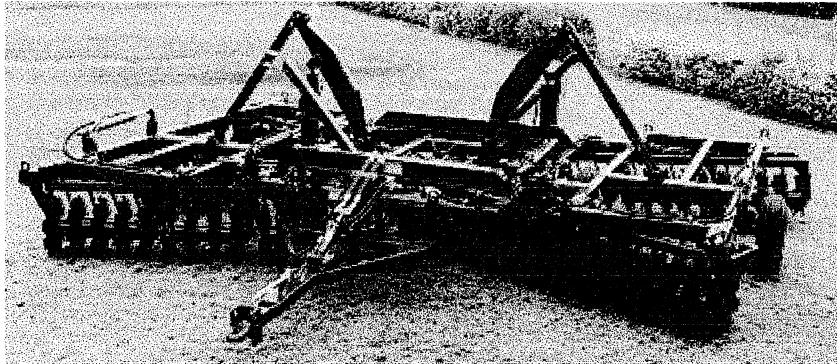


UNI BAR

Operators Manual



UB150-700 Series Tandem Disc Harrows

P&H Rural

B150-700 Series, B160-100 Series & B160-600 Series Tandem Disc Harrow

Introduction:

The P&H Rural Company Personnel would like to take this opportunity to thank you, the purchaser of this machine for your confidence in our product.

We believe your decision to invest in a P&H Rural machine, and with the correct care and maintenance of same, will reward you for years to come with trouble free service.

<p>Date:</p> <p>Model No.:</p> <p>Serial No.:</p> <p>Owner's Name:</p>
--

P&H Rural reserve the right to make changes or improvements in the design or construction of any part without incurring the obligation to install such changes on any machine previously delivered.

General Operating Instructions

1. Before operating discs, refer to safety precautions as set out in the front pages of this manual.
2. For folding wing units, when lowering wings to a working position, be sure wing lift cylinders are fully closed. After the wing wheels have hit the ground, continue to hold hydraulic lever. There will be a short pause before the cylinders fully close. When the cylinders fully close, the slots in the lift arms will centre allowing for the wings to float in uneven working.
3. DO NOT make sharp turns with the discs in the ground. Sharp turns put excess pressure on the front gangs and drawbar.

IT IS ADVISABLE TO ALWAYS LIFT MACHINE OUT OF THE GROUND WHEN MAKING SHARP TURNS. EXCESSIVE SIDE THRUST IS APPLIED TO BEARINGS AND MACHINE IF DISC IS TURNED WHILST STILL IN THE GROUND.

4. For the best performance, the tractor drawbar should be pinned at centre of tractor.
5. Once the disc is working, try to avoid discing with the front gangs cutting deeper than the rear gangs. Discs must be kept as level as possible. If front gangs are cutting deeper, excessive strain will be placed on the outer leading discs and bearings as these will be cutting the deepest which may lead to premature wear or failure.
6. In hard conditions or where a problem experienced with the leading wing gangs cutting deeper than the centre section it is necessary to set the wheels lower than those on the centre section.

Safety Recommendations

- (A) When discs are supplied in knock down form and packed for transport, EXTREME CARE must be taken when removing packing ties and supports. Frames and disc gangs are heavy and can cause serious injury if they slip or fall.
- (B) When lifting frame sections, use lifting lugs whenever possible.
- (C) Use lifting chains in lieu of fabric straps when unloading assembled disc gang sections. Discs are sharp and will damage straps causing failure and resulting in serious injury.
- (D) When assembling, ensure disc gangs are correctly blocked and supported when set in an upright position, ready to have main frames placed on top.
- (E) When assembling use aligning punch to line up holes. KEEP FINGERS OUT OF HOLES.
- (F) After assembling, check hydraulic hose fittings are tight and components are not damaged before applying pressure to the hydraulic system.
- (G) When connecting disc harrow to tractor, ensure tractor is in neutral and park brake is engaged. KEEP HANDS CLEAR of drawbar tongue.
- (H) DO NOT stand under wing sections while wing is being raised or lowered. If any component of the hydraulic system should fail, serious injury could occur.
- (I) When transporting disc harrow, always fit transporting sleeve over lift cylinder shaft and ensure pins are fitted in wing cradles to lock wings in folded position.
- (J) If it is necessary to carry out servicing or maintenance in a raised position, be sure to fit transporting sleeve over lift cylinder shaft and stay well clear of disc blades. If any component of the hydraulic system should fail or if hydraulic lever should accidentally be operated, discs could fall.

DO NOT RIDE ON DISC HARROW WHEN IN OPERATION

STAND WELL CLEAR OF DISC HARROW WHEN IN OPERATION OR WHEN WING GANGS ARE BEING RAISED OR LOWERED.

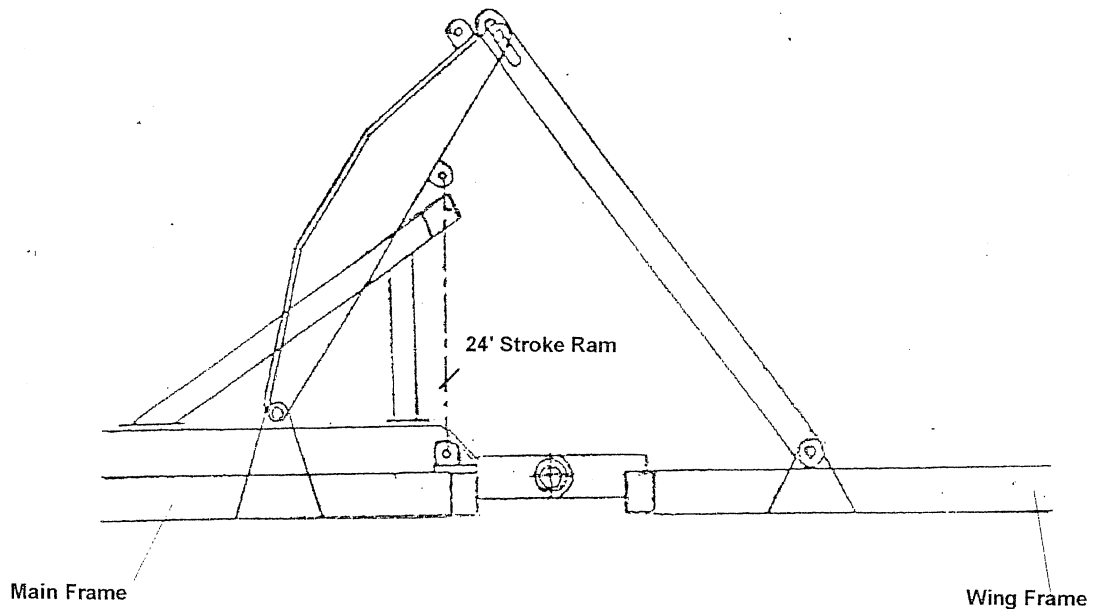
Pre-Delivery

1. Check all bolts and nuts are tight (refer settings on page 4).
2. Grease all bearings.
3. Ensure all moving parts work freely and lubricate same.
4. Operate all hydraulic rams and check for leaks.
5. Check tire pressures.
6. Record model and serial number (plate at front of machine)
7. Operators manual to be given to customer and explained.
8. Explain settings to customer.
9. Indicate danger areas around machine.
10. Check tractor has correctly fitted, rear facing and operational, breakaway hydraulic couplings.
Hydraulic hoses and fittings will not be covered by warranty if damaged due to inadequate breakaways.

Assembly Procedure

All Position instructions for assembly are taken from behind the machine looking forward towards the tractor.

1. Select a large, flat, clear area for assembly where a crane can operate uninhibited.
2. Ensure sufficient sockets, bars, hammers, etc., are on hand to complete the operation.
3. Remove all wire ties and arrange all parts. Identify gangs, remembering that the scrapers hang to the rear of the machine, and the outside rear gangs have the small filler disc on the outer end.
4. Arrange center front gangs in a secure upright position. Then, place the centre main frame over top and secure gangs.
5. Arrange centre rear gangs and fit as for step 4 above.
6. Lift wing frames from the farthest outside points and position into pivot points on main frame and fit pins. (To avoid problems when lowering the wing frame, have the crane in an appropriate position).
7. Once wing hinge pins are fitted, place outer end of wing frame on stands and assemble folding mechanism as per illustration below.



8. Fit drawbar, hydraulic cylinders, hoses and wheels. Hydraulic phasing cylinders are fitted to the depth wheels and must be in sequence. Units fitted with four lift cylinders must have the largest diameter cylinder on the left, decreasing in size across to the right.
 9. Hitch to tractor and operate hydraulic cylinders. It may be necessary to work the cylinders several times to clear the air and phase all the cylinders on the depth wheels.
- * IMPORTANT * Extreme care must be taken when assembling the hydraulic system. A very small amount of foreign matter will cause the phasing valves to malfunction.
10. Arrange wing gangs in a secure upright position and move tractor and main frame to fit same.
 11. Refer settings and tighten all bolts.

Trouble Shooting

To maintain the best operation from your Tandem Disc Harrow, the following points will be helpful in overcoming faults, if any, in the working of the machine.

1. The machine is leaving a hill in the centre:
 - a) Move back gangs laterally outwards;
 - b) Provide less set on back gangs; or
 - c) Take weight off the back gangs with the weight transfer adjustment.
2. If the machine is leaving a furrow in the centre:
 - a) Move gangs laterally inwards to fill more;
 - b) Provide more set on the back gangs; or
 - c) Place more weight on to the back gangs with weight transfer adjustment.
3. If the machine is leaving a lip on the outside of the worked area:
 - a) Reduce speed; or
 - b) Reduce set on front gangs to prevent soil being thrown out beyond the back discs.
4. If the machine is leaving a gutter on the extreme outside
 - a) Plough shallower; or
 - b) A small filler disc may be required.
5. To achieve the best plowing result an optimum speed must be maintained. Too fast or too slow can hinder the results.

Maintenance

After first one hour of operation: Check all nuts are tight, pay particular attention to gang bolts, scrapers and wheel studs.

After two hours: Recheck as above and grease all points.

After eight hours: Check all previous points. Bedding in of parts should now be complete to allow this to be your final delivery check but some conditions may warrant continual vigilance.

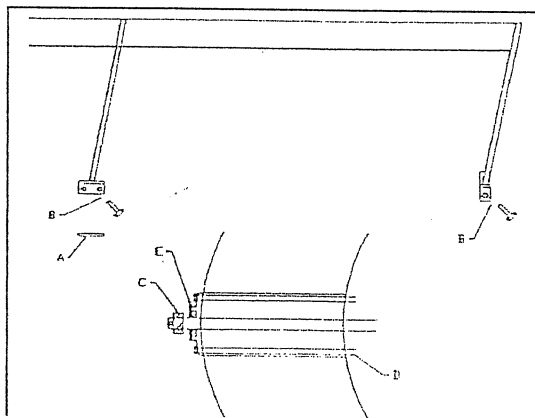
Grease all points – As necessary

Periodical checks - Tire pressure (60 psi)
Check wheel bearings and refill with grease.

Tire pressures should be checked regularly. Uneven tire pressure will result in reduced performance of the machine and may result in tire damage. It is normal procedure to use pressure specifications set by the tire manufacturer, although this may vary according to machine weight and soil conditions. If tires are over inflated, it may result in excessive soil build up on tires, or bouncing, causing structural damage as the tires are the only form of suspension cushion to the machine.

Disc and Gang Bearing Replacement:

1. With the disc gangs sitting on a level surface, remove axle retaining plate **A** as shown in the illustration.
2. Remove axle retaining bolts **B**.
3. Use the tractor hydraulics and raise the machine and allow the disc gang section to drop away from the gang frame. Some care may need to be taken to avoid the disc gangs being caught in the disc scrapers.
4. On the faulty bearing end of the disc gang, remove the bearing spacers **C**.
5. Remove the four (4) bearing housing studs and dislodge housing complete with bearing.
6. Twist bearing to 180° and remove through spaces provided
7. Replace with genuine P&H Rural bearing and tap into place, then replace the four (4) studs. Grease to avoid damage to bearing. Re-assemble and refit under gang frame.
8. After two (2) hours operation, re-tighten all bolts and nuts that were removed.
9. When changing scalloped disc blades, check that the scallops are fitted to make a spiral pattern on the gang.



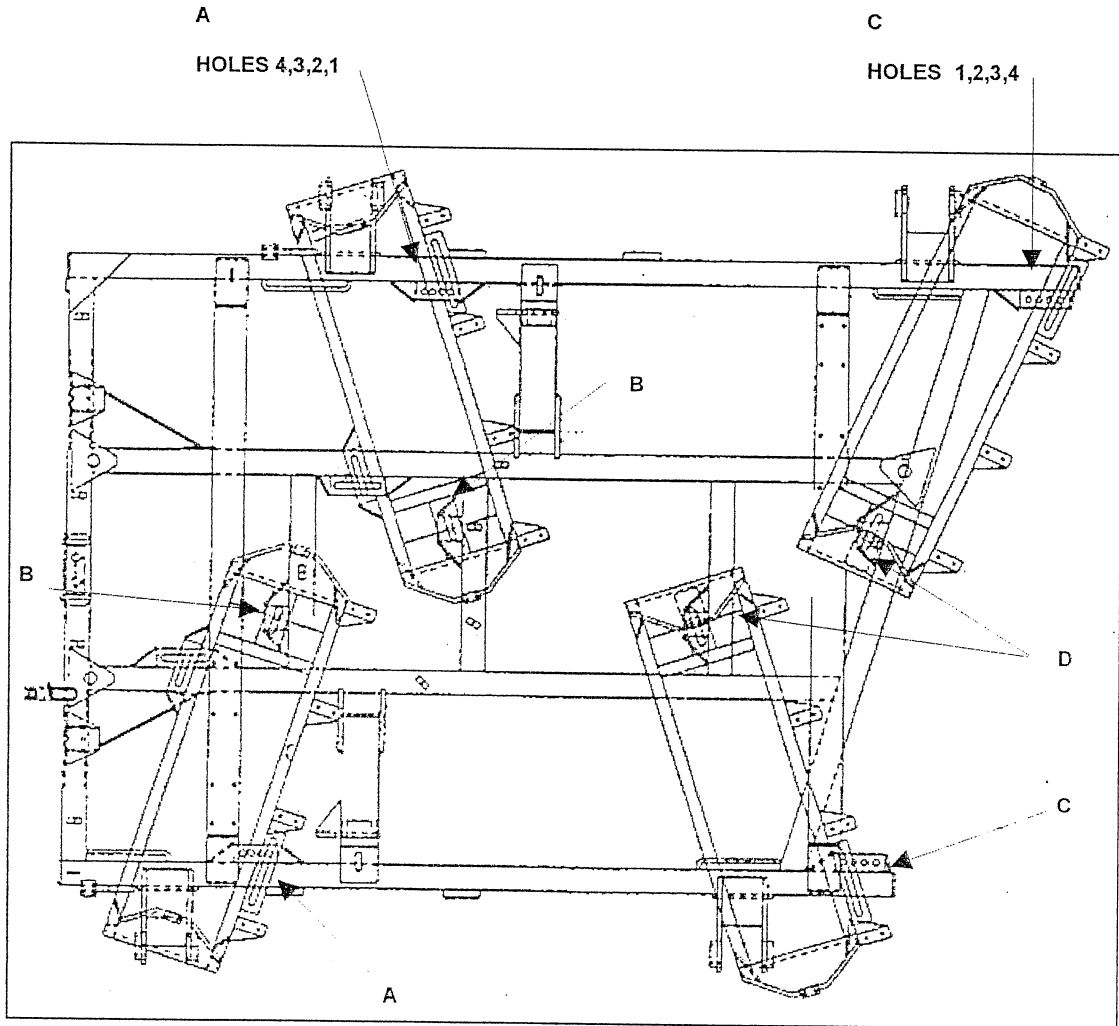
Settings

With the variation of soil types, settings may require fine tuning. The most standard setting is:

Front Gangs:

Point A set in position 23

Point B set at 25mm from inner most position on slot.



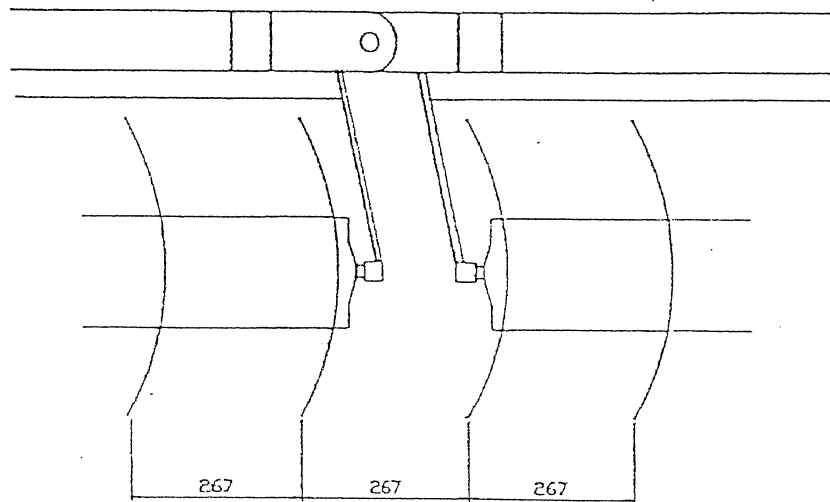
Rear Gangs:

Point C set in Position 12

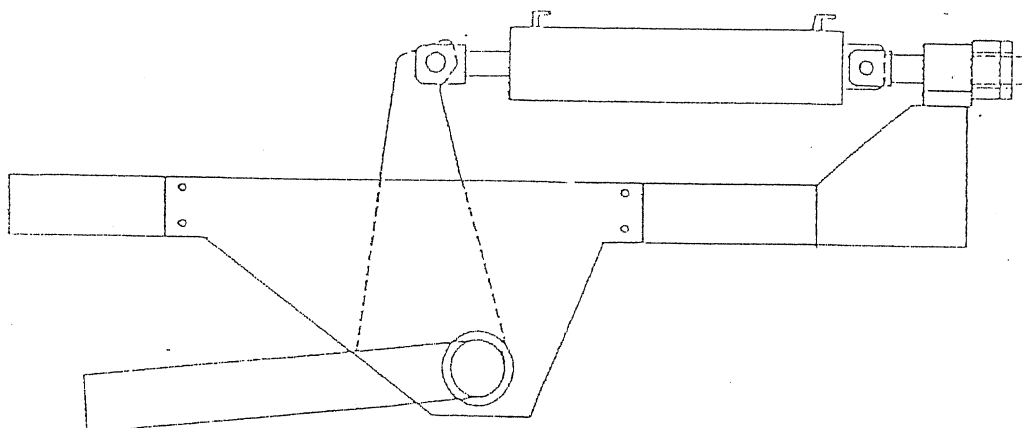
Point D set at maximum to outer end of slot.

The angle gangs are set, is determined by the soil conditions. A field with hard soil will require more cutting angle to penetrate soil than a field with soft soil. In soft soil, discs will push dirt or ridge at outside if there is too much cutting angle.

After setting the angle of cut on the disc gangs, check the spacing measurements between each outer disc on the centre section and the inner disc on each wing disc gang while the machine is in an unfolded and level position. NOTE: The spacing between the centre frame outer discs and the wing frame inner discs should be set at an equal measurement to the other disc spacings. See illustration below.

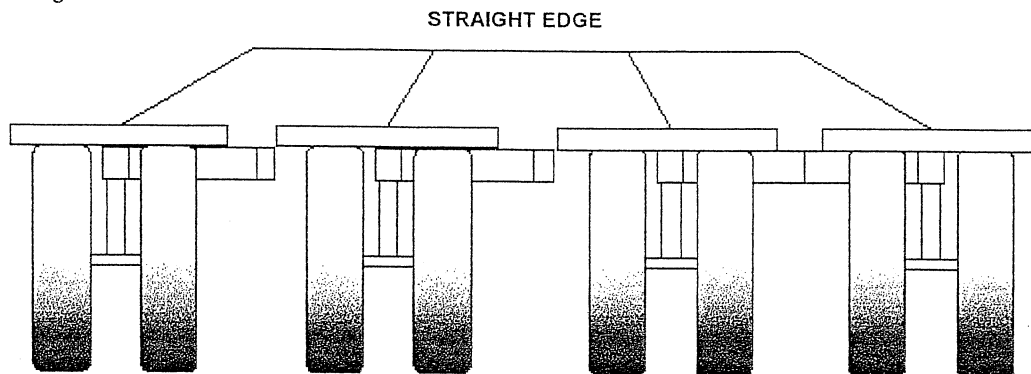


Care must be taken on folding wing models to ensure each gang is set, giving the correct disc spacing between gangs in a level position. Inside and outside gangs must be set straight or undue stress loading will be applied to gang bearings.



The harrow is fitted with a screw adjuster on the body end of each wheel lift phasing cylinder. After the cylinders have been phased, lay a straight edge across one of the main frame beams, then raise the

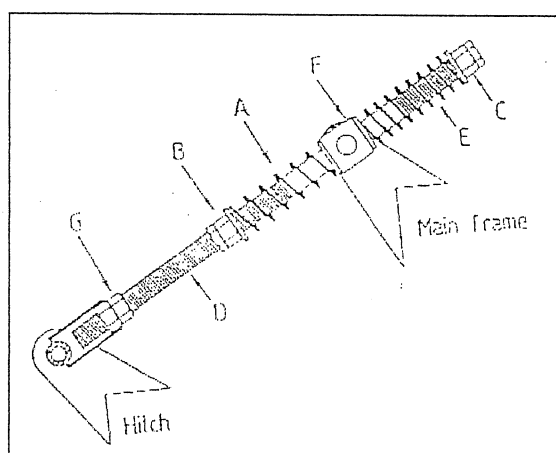
wheels up until they touch. Move across the machine and adjust each wheel until they are all set at an even height.



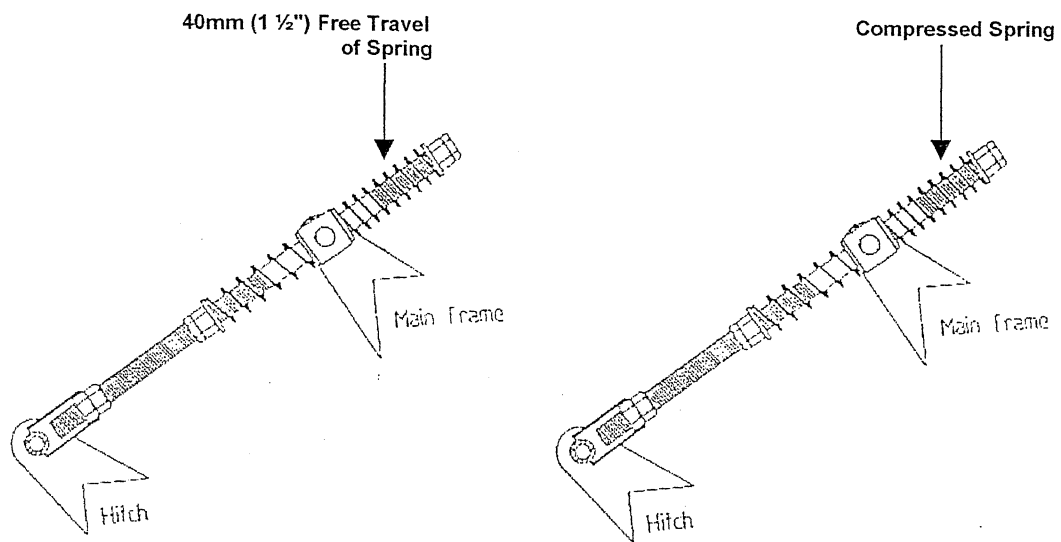
When fitting larger than standard tires, it is necessary to adjust the hydraulic cylinders back on the screw adjusters to give the machine ample depth in deep ploughing.

With machine engaged in soil (working position), check that main frame and drawbar are level. Then, set the hydraulic pitch control ram at centre of stroke by adjusting top springs.

To set disc in correct level position, tension lower springs **A**, see illustration below, up until the rear gangs are cutting to the required depth or near to without causing the machine to walk sideways. Once the lower springs **A** have been set, with the disc in a working position adjust nuts **C** out to allow springs **E** 40mm (1 1/2") of free travel on the leveling rods. If additional thread is required to adjust nut **C** out to give the required free travel to spring **E**, loosen nut **G** and screw rods **D** out of the bottom holder. The tension on springs **A** and the free travel of springs **E** will allow the disc to lift over an obstruction which it may encounter reducing the risk of disc and bearing damage. When the disc is raised to a transport position, the low springs **A** will lengthen, taking up the free travel of spring **E** and act as a buffer spring in transport. NOTE: Try to keep the unthreaded section of rod **D** central in trunion **F**. Grease trunion **F** after each 8 hours of operation.



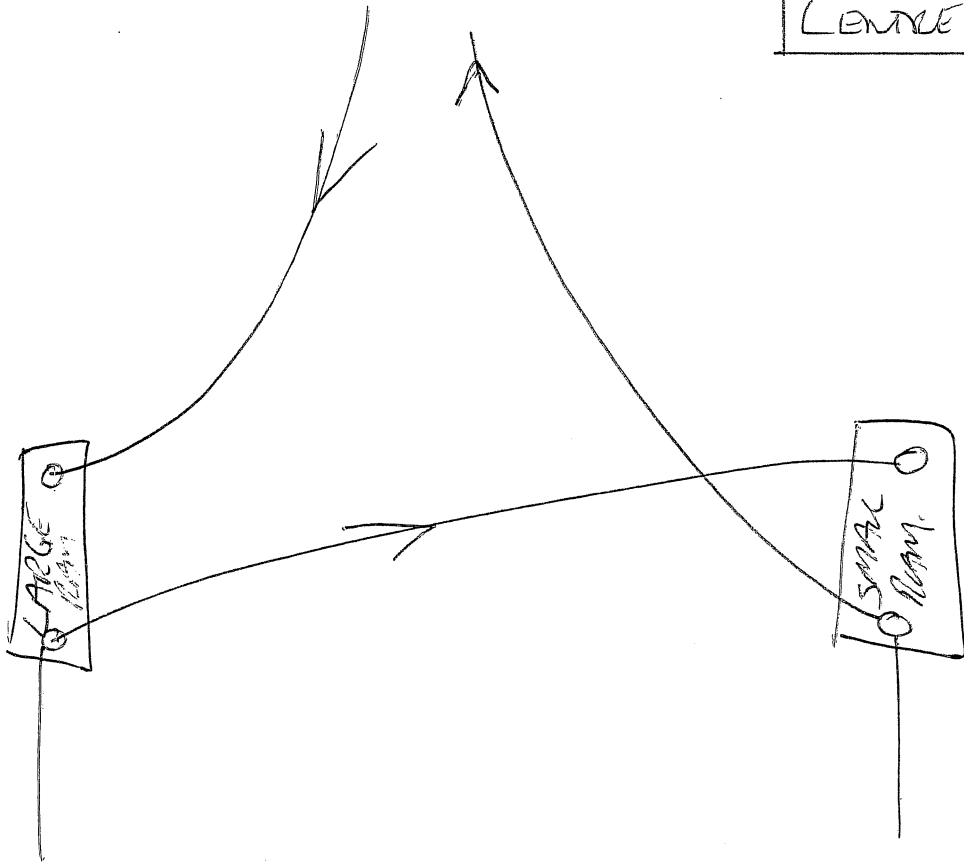
Do not operate machine with spring E in a compressed position:



Never operate folding wing discs with wings in the folded position. This will double the mass per metre of foot of cut and cause both structural and component damage. Always check that the wing locking pins are fitted before transporting. DO NOT attempt to fold or unfold wings with the machine in a working position. The machine must be raised clear of the ground.

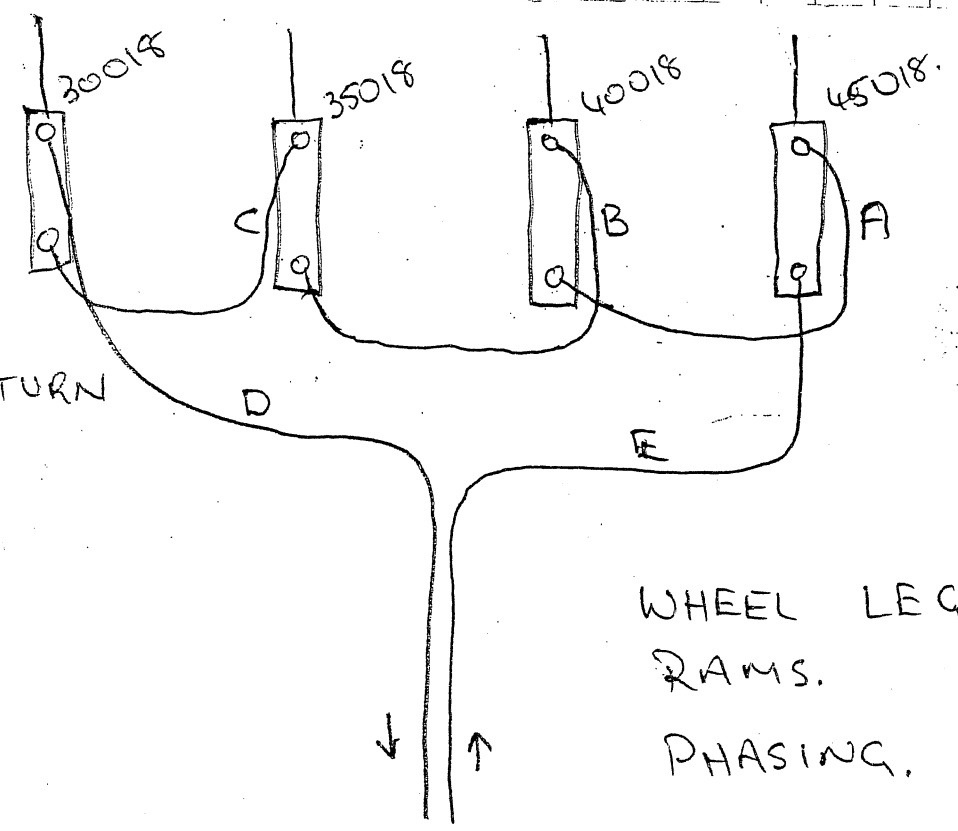
TRACTOR

TANDEM DISC
CENTRE FRAME ONLY



neous
ion

- A 3550
- B 4550
- C 3550
- D 7700 IN
- E 8300 RETURN



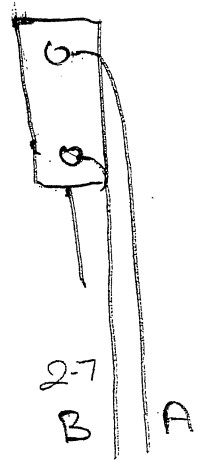
2100-164

- A 8-3
- B 3-550
- C 4-550
- D 3-550
- E 7-7
- F 5-4 (2)

WHEEL LEG
RAMS.
PHASING.

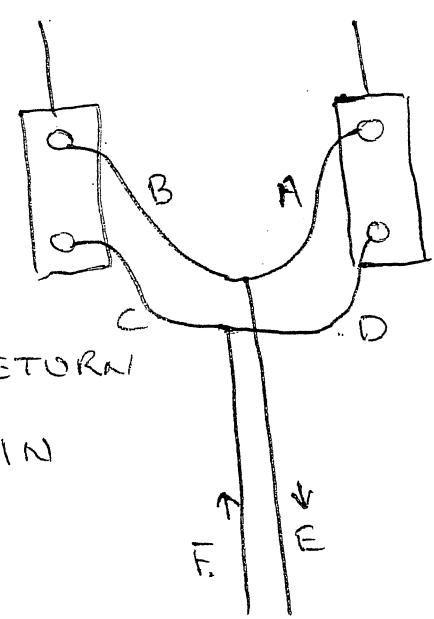
MOI
A
Des

D/BAR
RAM.



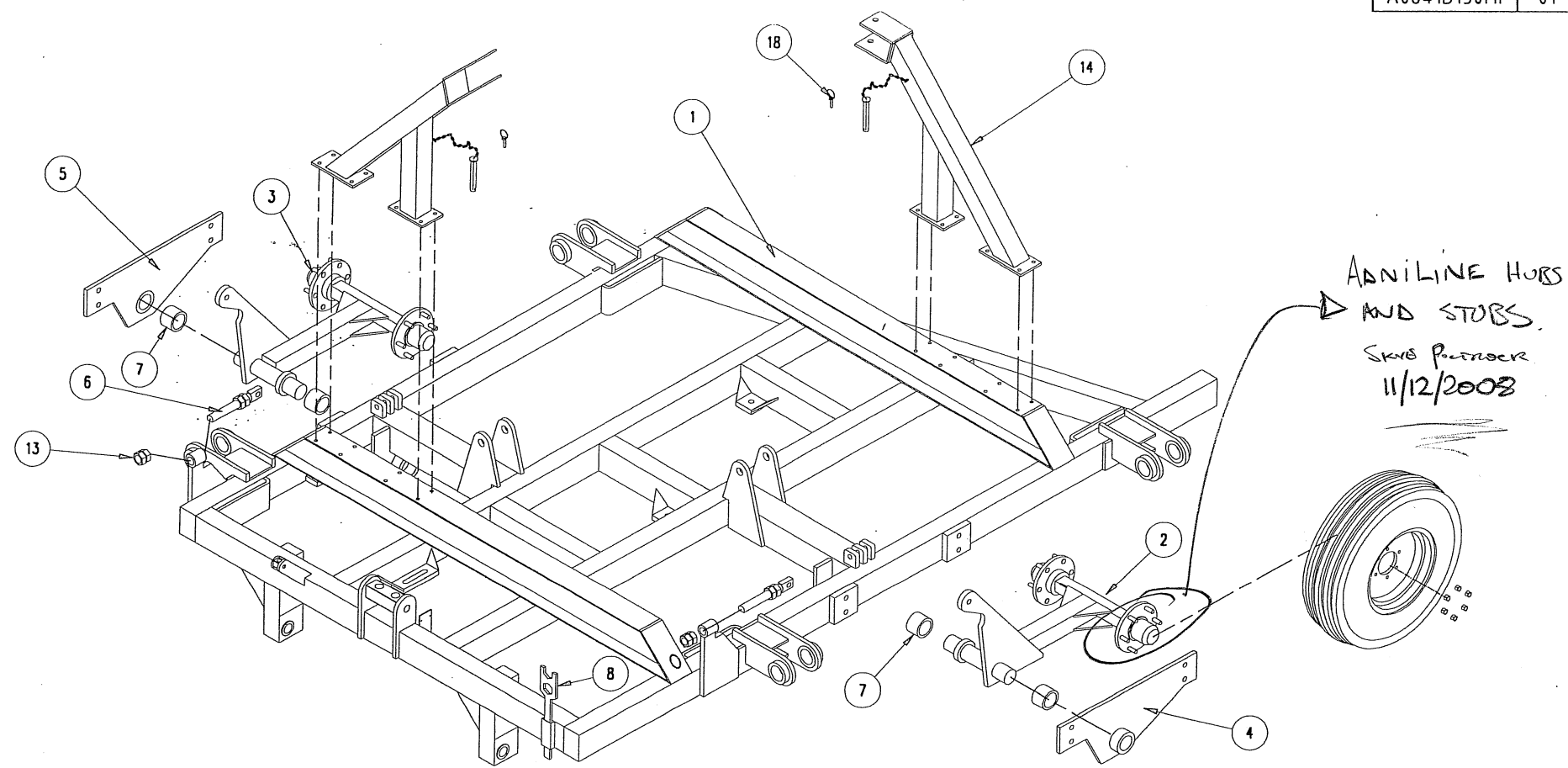
- A 3000
- B 3000

- A 1800
- B 2100
- C 1400
- D 1300
- E 5400 RETURN
- F 5400 IN



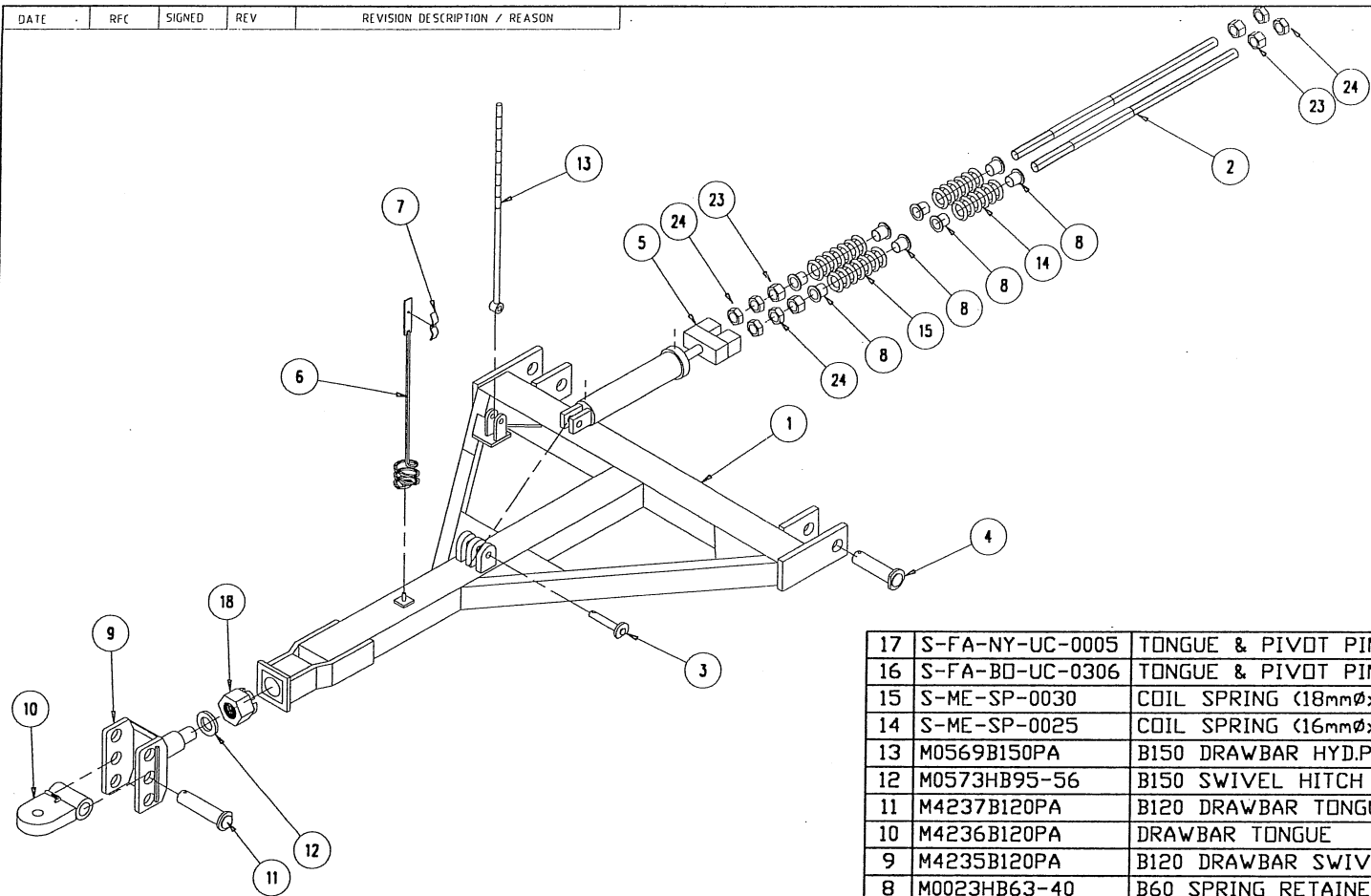
SCISSOR RAMS
LEFT + RIGHT WINGS

5150-164



18	S-FA-PN-LY-0004	WING SUPPORT PIN LYNCH PIN	2	9	S-ME-FT-NI-0030	STRAIGHT GREASE NIPPLE	8
17	S-FA-WA-SP-0008	WING SUPPORT FRAME SPRING WASHER 5/8SQ ZP	16	8	M0014PL12BIS	B60-700 SPANNER	1
16	S-FA-NU-UC-0007	WING SUPPORT FRAME NUT 5/8UNC ZP	16	7	M5072STORE	B150 WHEEL BUSH	4
15	S-FA-BO-UC-0603	WING SUPPORT FRAME BOLT 1-3/4x5/8UNC ZP	16	6	M0571B150PA	B150 RAM ADJUSTMENT ROD	2
14	M0598B150PA	B150-756/80 WING SUPPORT FRAME	2	5	M0560B150MF	B150 R/HAND WHEEL LEG SUPPORT PLATE	1
13	S-FA-NU-BW-LO-2	RAM ADJUSTER LOCKING NUT	8	4	M0559B150MF	B150 L/HAND WHEEL LEG SUPPORT PLATE	1
12	S-FA-CL-0001	DEPTH GAUGE "R"CLIP	1	3	M0590B150PA	B150-756/108 R/HAND DUAL WHEEL LEG	1
11	S-FA-WA-SP-0010	WHEEL LEG SPRING WASHER 1"SQ ZP	8	2	M0589B150PA	B150-756/108 L/HAND DUAL WHEEL LEG	1
10	S-FA-BO-UC-0800	WHEEL LEG BOLT 2x1UNC ZP	8	1	M5083B150PA	B150-756/80PL SMALL WINGED MAIN FRAME	1
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.

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APPEARS IN BOOK :						APPROVED I.J.S.		SCALE 25		DRAWING No. A0841B150MF		PAGE 01	
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BONEL MANUFACTURING LTD				DO NOT SCALE									



17	S-FA-NY-UC-0005	TONGUE & PIVOT PIN NYLOC NUT 7/16"UNC	3
16	S-FA-BD-UC-0306	TONGUE & PIVOT PIN BOLT 2-1/2"x7/16UNC	3
15	S-ME-SP-0030	COIL SPRING (18mmØx250)	2
14	S-ME-SP-0025	COIL SPRING (16mmØx220)	2
13	M0569B150PA	B150 DRAWBAR HYD.PITCH DEPTH GAUGE	1
12	M0573HB95-56	B150 SWIVEL HITCH WASHER	1
11	M4237B120PA	B120 DRAWBAR TONGUE PIN	1
10	M4236B120PA	DRAWBAR TONGUE	1
9	M4235B120PA	B120 DRAWBAR SWIVEL	1
8	M0023HB63-40	B60 SPRING RETAINER	8
7	M0300FL25-5	B60-700 HOSE CLAMP	1
6	MC0088B60PA	POGD STICK	1
5	M4252B120PA	B120 HYDRAULIC PITCH RAM ADAPTOR	1
4	M0566B150PA	B150-724/40 DRAWBAR PIVOT PIN	2
3	M0594B150PA	B150-756/108 HYD LEVEL RAM PIN	1
2	M0007RD3810BS	B60 LEVELLING ROD	2
1	M0592B150PA	B150-756/108 HYDRAULIC DRAWBAR	1

24	S-FA-NU-BW-LD-2	LEVELLING ROD LOCK NUT 1-1/2"BSW	6
23	S-FA-NU-BW-0012	LEVELLING ROD NUT 1-1/2"BSW	4
22	S-FA-NY-UC-0004	POGD STICK CLAMP NYLOC NUT 3/8"UNC	1
21	S-FA-BD-UC-0203	POGD STICK MOUNT BOLT 1-1/2x3/8"UNC ZP	1
20	S-FA-BD-UC-0205	POGD STICK CLAMP BOLT 2x3/8UNC ZP	1
19	S-FA-CL-0043	SWIVEL HITCH COTTER PIN	1
18	S-FA-NU-CA-8	SWIVEL HITCH CASTELLATED NUT 2"	1

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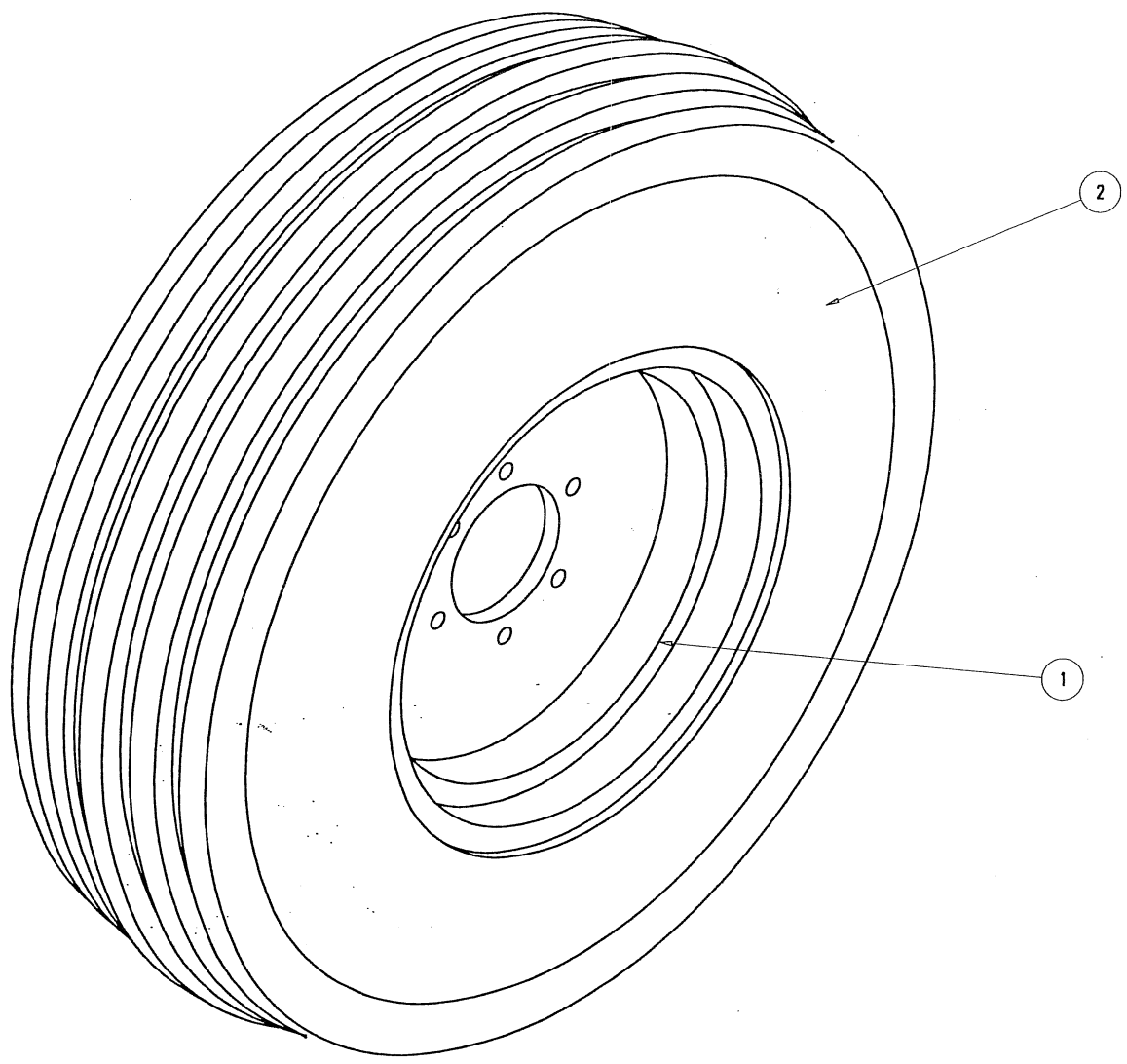
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from planting to harvesting

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2	S-ME-TY-0039	900x16 8 PLY TYRE WITH TUBE	1
1	M4330B91PA	B91-002 BAG LIFTER RIM	1
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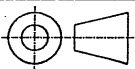
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TITLE: B150 FOLDING TYRE & RIM ASSEMBLY

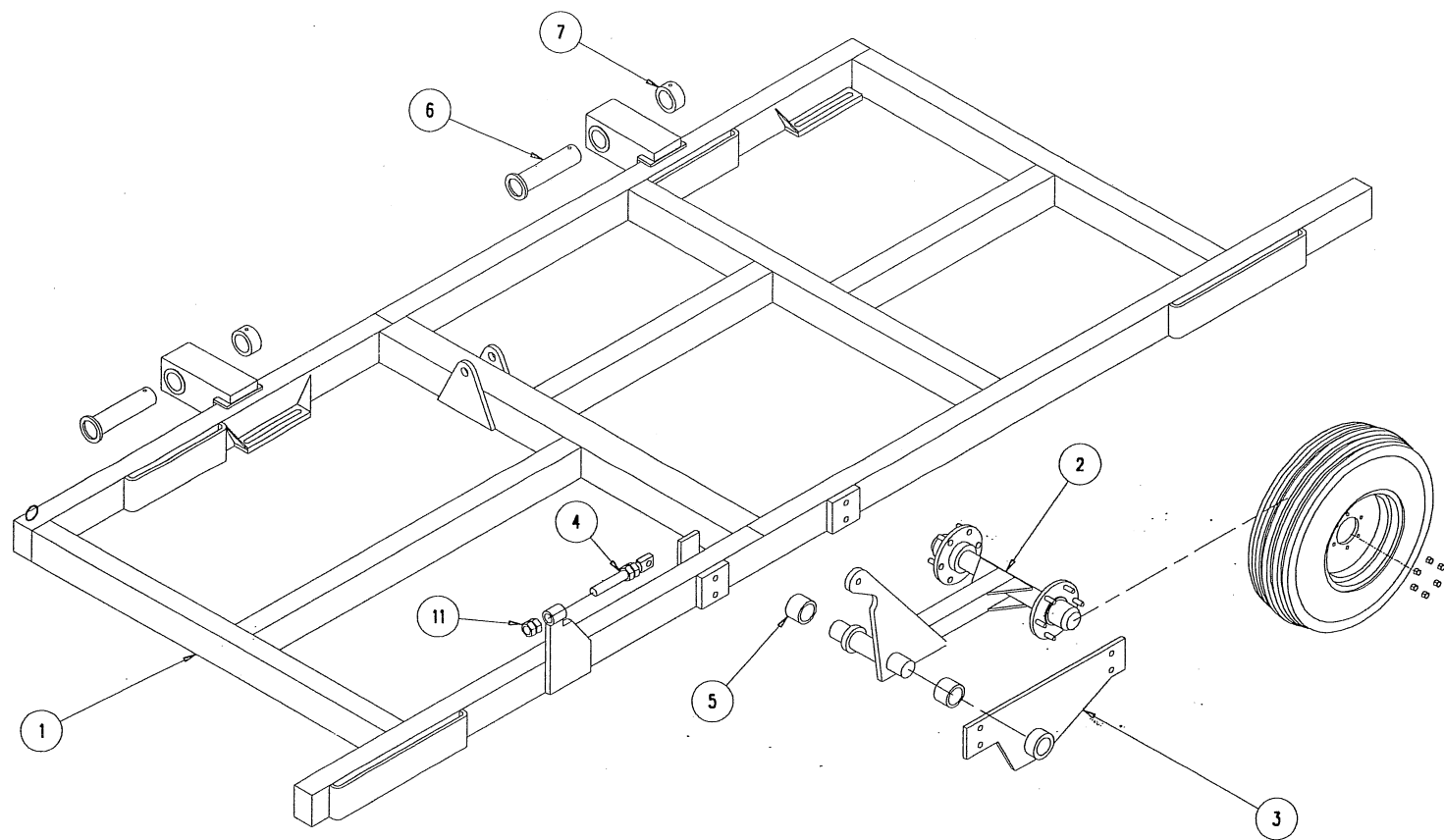
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OPEN MACHINING TOLERANCE	GENERAL TOLERANCES	DEFAULT MACHINING TOLERANCE
+0.8 -0.8	Linear : 1mm Angular 1 deg.	+0.00 -0.17



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14	S-FA-WA-SP-0006	SPRING WASHER 1/2*ZP		7	M0600HB112-71	B150-HPIN COLLAR	2
13	S-FA-NU-UC-0005	HINGE PIN NUT 1/2*UNC ZP	2	6	M0599B150PA	B150-756/80 HINGE PIN	2
12	S-FA-BD-UC-0413	HINGE PIN BOLT 5-1/2x1/2*UNC ZP	2	5	M0572STORE	B150 WHEEL BUSH	2
11	S-FA-NU-BW-LD-2	RAM ADJUSTER LOCK NUT 1-1/2*6TPI ZP	4	4	M0571B150PA	B150-ALL RAM ADJUSTMENT ROD	1
10	S-ME-FT-NI-0030	GREASE NIPPLE	2	3	M0559B150MF	B150-ALL L/HAND WHEEL LEG SUPPORT PLATE	1
9	S-FA-WA-SP-0010	SPRING WASHER 1*SQ ZP	4	2	M0602B150PA	B150-764/80 L/HAND WING WHEEL LEG	1
8	S-FA-BD-UC-0800	2x1*UNC BOLT ZP	4	1	M0587B150MF	B150-780 L/HAND SMALL FRAME WING	1

NAME: B150	TYPE: ASS	TITLE: B150-780 LEFT HAND WING ASSEMBLY	DRAWN J.J.S.	DATE 27/10/98	DRAWING No. A0847B150MF		PAGE 01	REV. A
APPEARS IN BOOK :			APPROVED	SCALE N.T.S.				

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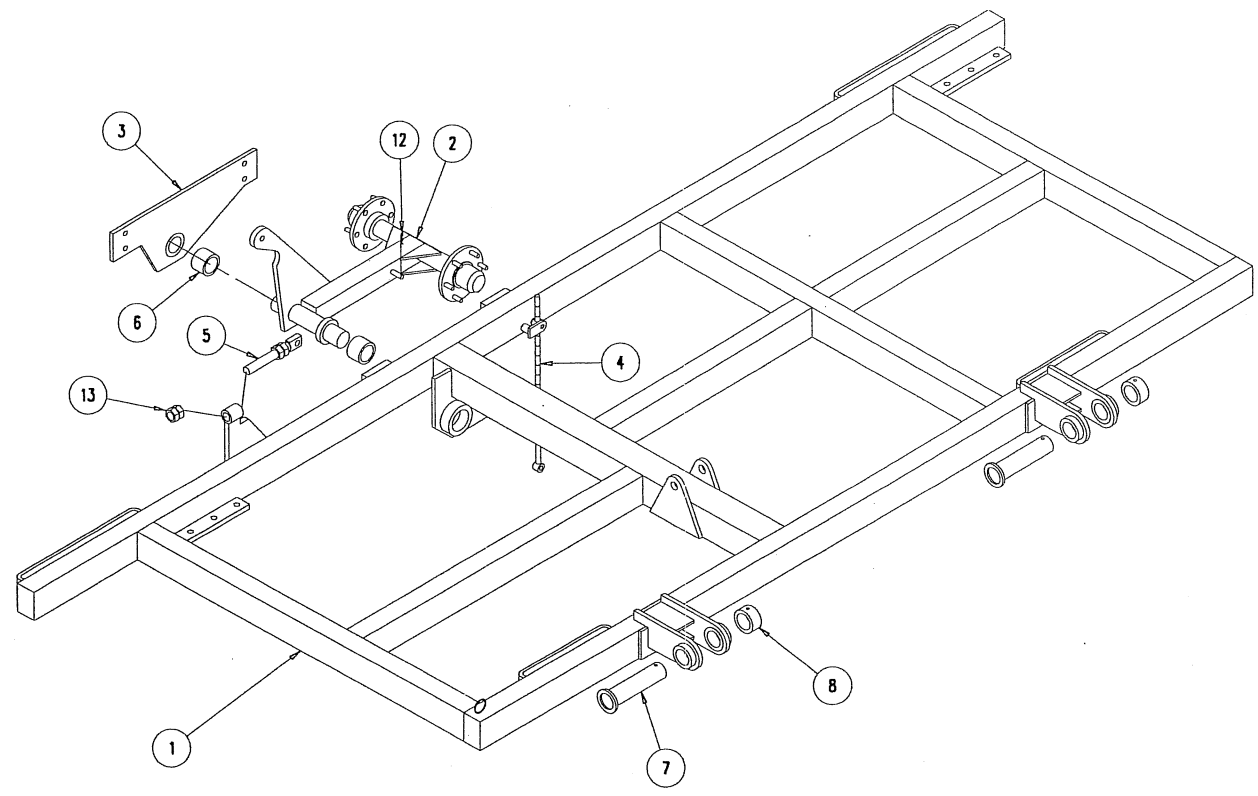
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from planting to harvesting

Unless Otherwise Stated All Dimensions Are in Millimetres

OPEN MACHINING TOLERANCE	GENERAL TOLERANCES	DEFAULT MACHINING TOLERANCE
+0.8 -0.8	Linear : 1mm Angular 1 deg.	+0.00 -0.17

DATE	REF	SIGNED	REV	REVISION DESCRIPTION / REASON
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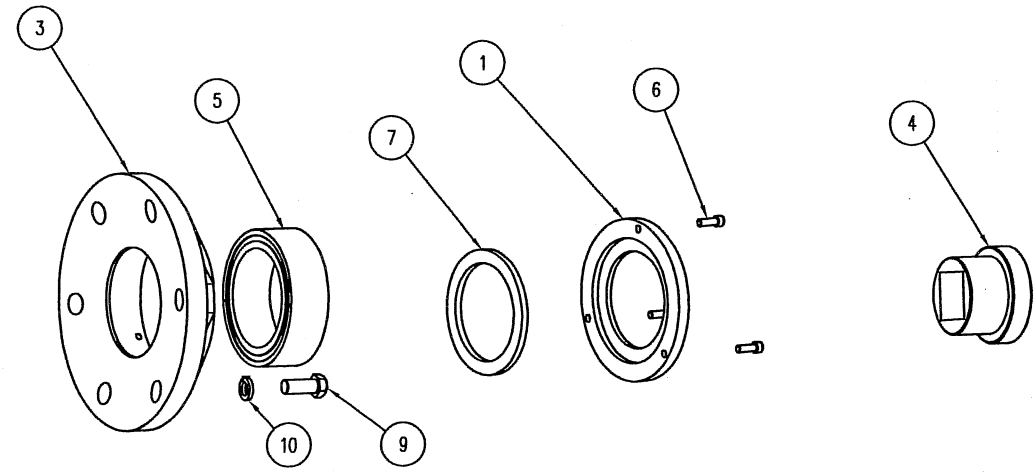
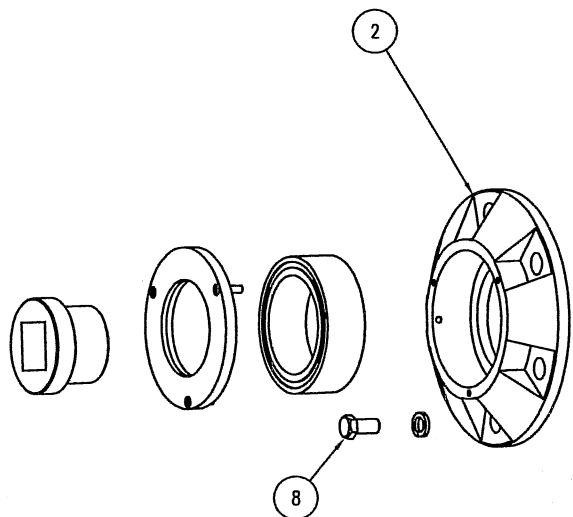
DRAWING No.	PAGE	REV.
A0848B150MF	01	A



ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.
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15	S-FA-NU-UC-0005	HINGE PIN NUT 1/2*UNC ZP	2	7	M0599B150PA	B150-756/80 HINGE PIN	2
14	S-FA-BD-UC-0413	HINGE PIN BOLT 5-1/2x1/2*UNC ZP	2	6	M0572STORE	B150 WHEEL BUSH	2
13	S-FA-NU-BW-LD-2	RAM ADJUSTER LOCK NUT 1-1/2*6TPI ZP	4	5	M0571B150PA	B150-ALL RAM ADJUSTMENT ROD	1
12	S-FA-CL-0001	DEPTH GAUGE "R" CLIP	1	4	M0570B150PA	B150-ALL HYD PITCH DEPTH GAUGE	1
11	S-ME-FT-NI-0030	GREASE NIPPLE	2	3	M0560B150MF	B150-ALL R/HAND WHEEL LEG SUPPORT PLATE	1
10	S-FA-WA-SP-0010	SPRING WASHER 1*SQ ZP	4	2	M0603B150PA	B150-764/80 R/HAND WING WHEEL LEG	1
9	S-FA-BD-UC-0800	2x1*UNC BOLT ZP	4	1	M0588B150MF	B150-780 R/HAND SMALL FRAME WING	1

NAME: B150	TYPE: ASS	TITLE: B150-780 R/HAND WING ASSEMBLY	DRAWN I.J.S.	DATE 27/10/98	DRAWING No. A0848B150MF	PAGE 01	REV. A
APPEARS IN BOOK :			APPROVED	SCALE N.T.S.			

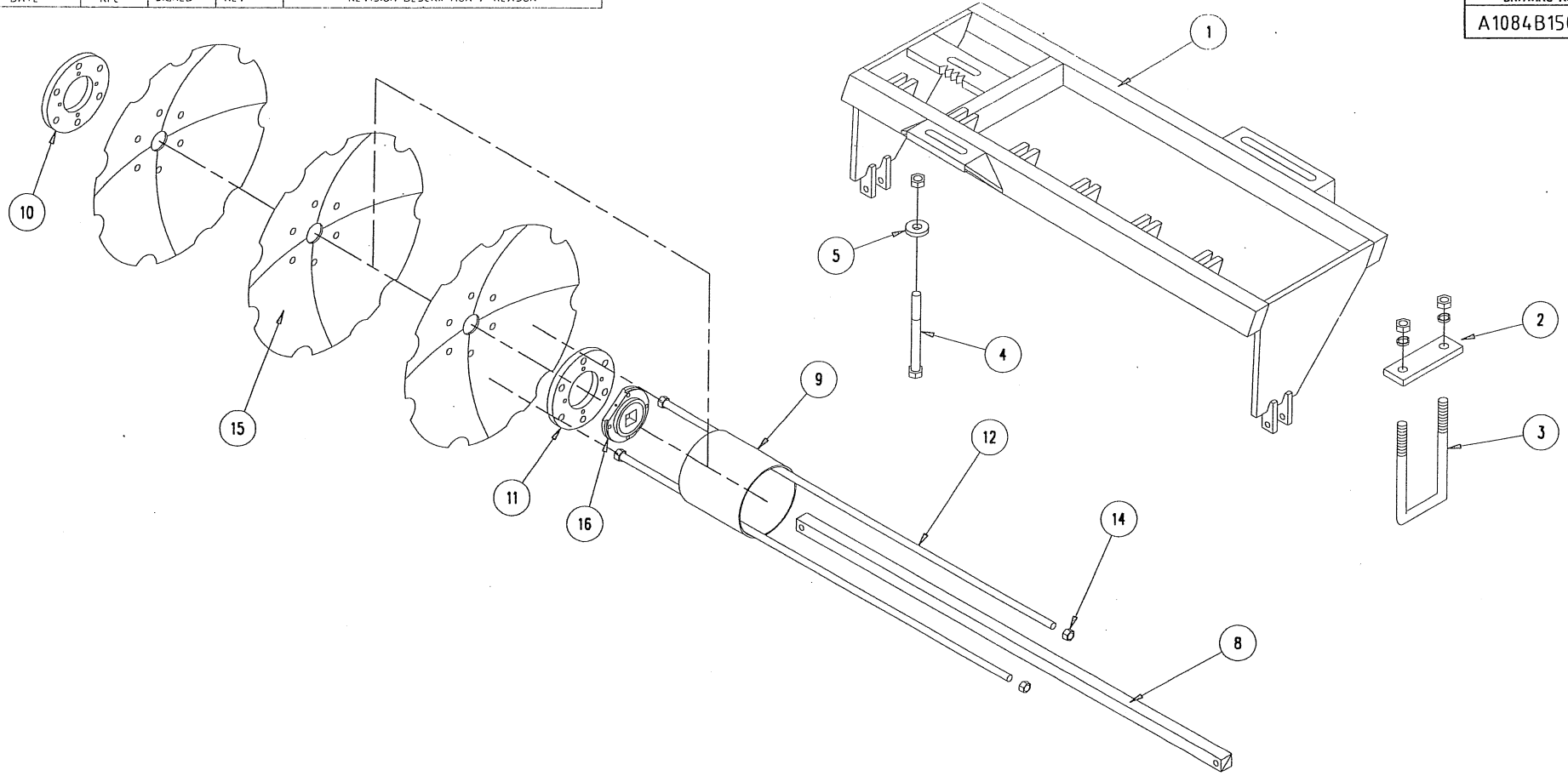
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			DO NOT SCALE		



ITEM	PART/ASS. No.	DESCRIPTION	QTY.
10	S-FA-WA-SP-0006	WASHER SPRING 1/2" SQ	12
9	S-FA-BO-UC-0400	BOLT UNC 1-1/4 X 1/2" GR8	6
8	S-FA-BO-UC-0400	BOLT UNC 1 X 1/2 GR8	6
7	S-ME-SE-0015	FELT RING	2
6	S-FA-SC-BW-0429	CSEW BSW 1/2 X 1/4"	6
5	S-ME-BR-0200	REGREASABLE BEARING	2
4	M0532STORE	B260-ALL CASE/STEIGER BEARING SLEEVE	2
3	M0531STORE	B260-ALL CONCAVE CASE/STEIGER BEARING HOUSING	1
2	M0530STORE	B260-ALL CONVEX CASE/STEIGER BEARING HOUSING	1
1	M0534PL12	CASE/STEIGER BEARING COVER.	2

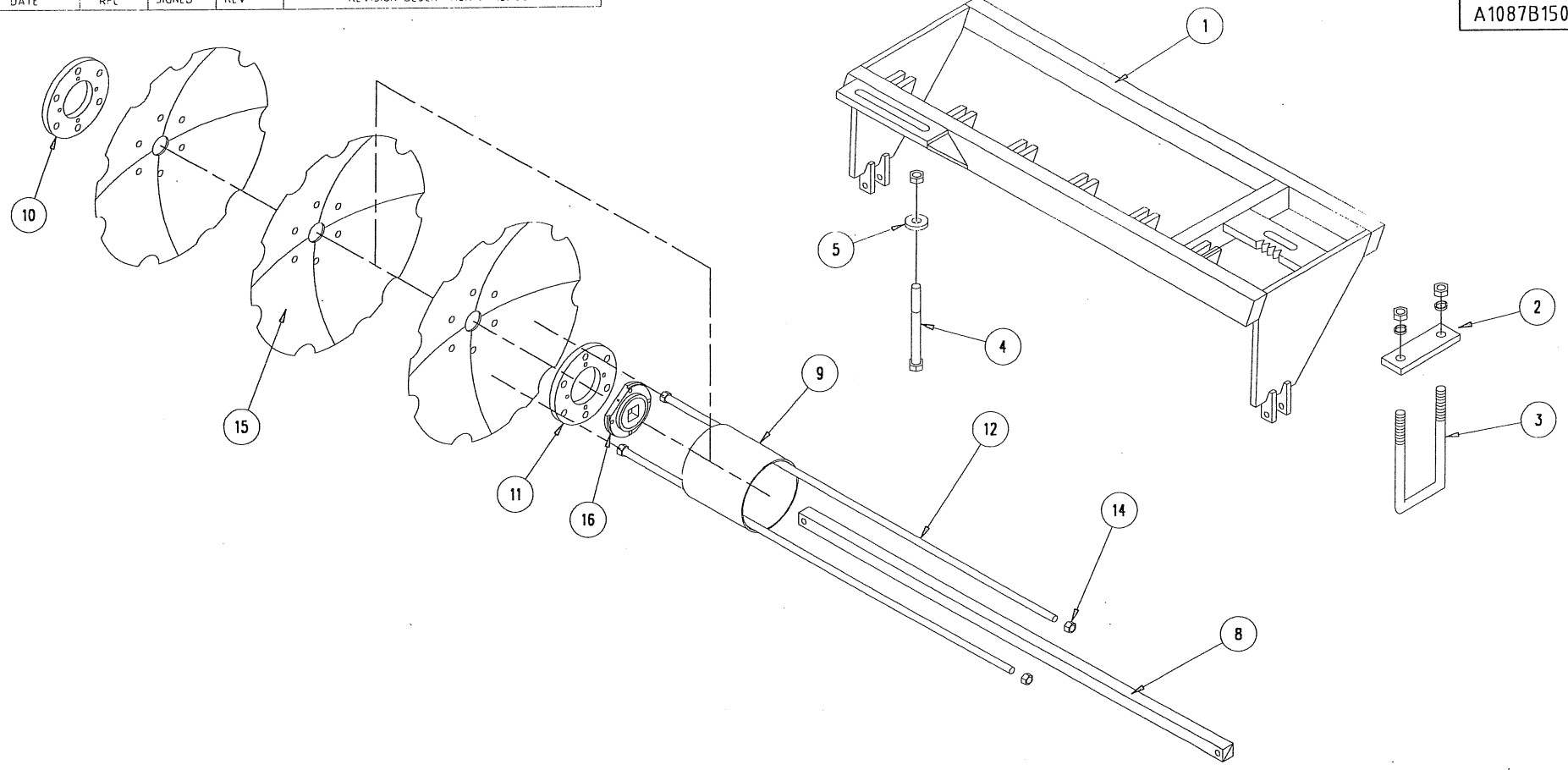
NAME:	TYPE: ASS	TITLE: NEW STYLE BEARING KIT	DRAWN R.W.W.	DATE 22-06-2001	DRAWING No. A9997SPARE		
APPEARS IN BOOK :			APPROVED	SCALE 1:1			
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DO NOT SCALE



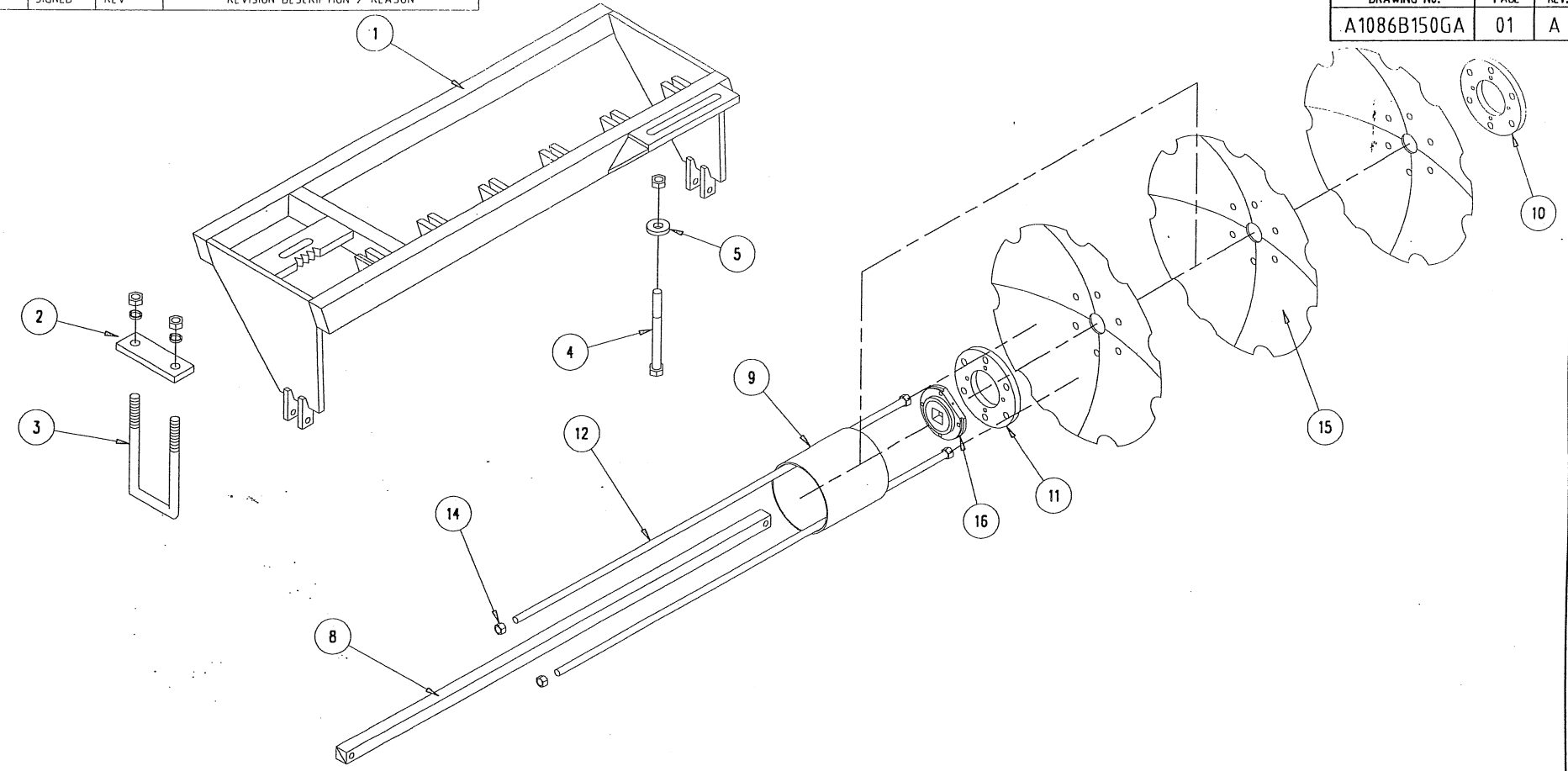
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.
20	S-FA-WA-SP-0006	BEARING HOUSING SPRING WASHER 1/2"SQ ZP	8	10	M0920PL20	B150 CONVEX BEARING HOUSING	1
19	S-FA-BO-UC-0402	BEARING HOUSING BOLT 1-1/2x1/2"UNC ZP	4	9	M0448PI21910-480	B260-PIPE SPACER	6
18	S-FA-BO-UC-0401	BEARING HOUSING BOLT 1-1/4x1/2"UNC ZP	4	8	M0684SQ40	B150-7 DISC AXLE 40mm SQ @ 1634	1
17	S-FA-WA-SP-0008	AXLE BOLT SPRING WASHER 5/8"SQ ZP	2	7	S-FA-NU-UC-0010	NUT 1"UNC ZP	5
16	M0922STORE	B150/160 OFFSET BEARING	2	6	S-FA-WA-SP-0010	SPRING WASHER 1" ZP	5
15	S-DS-SC-0008	SCALLOPED DISC 26"x6mm	7	5	S-FA-WA-FL-0028	GANG BOLT WASHER 1"12mm THK	4
14	S-FA-NU-UC-0008	TIE BOLT NUT 3/4"UNC ZP	6	4	S-FA-BO-UC-0804	GANG BOLT 4x1"UNC ZP	3
13	S-FA-WA-SP-0009	TIE BOLT SPRING WASHER 3/4"SQ ZP	6	3	S-FA-BO-UU-0202	"U"BOLT	1
12	M0694B150PA	B150 TIE BOLT 7 DISC GANG	6	2	M0563FL75-20	"U"BOLT PLATE	1
11	M0921PL20	B150 CONCAVE BEARING HOUSING	1	1	M0641B150GA	B150-756/80 CENTRE L/HAND FRONT GANG	1

NAME: B150		TYPE: ASS	TITLE:	DRAWN I.J.S.	DATE 24/09/98	DRAWING		REV.
APPEARS IN BOOK :			B150-56/80PL CENTRE L/H FRONT GANG	APPROVED	SCALE N.T.S.	DRAWING No.	PAGE	
						A1084B150GA	C1	A
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© BONEL MANUFACTURING LTD. DO NOT SCALE						GENERAL TOLERANCES Linear :1mm Angular 1 deg.		DEFAULT MACHINING TOLERANCE +0.00 -0.17



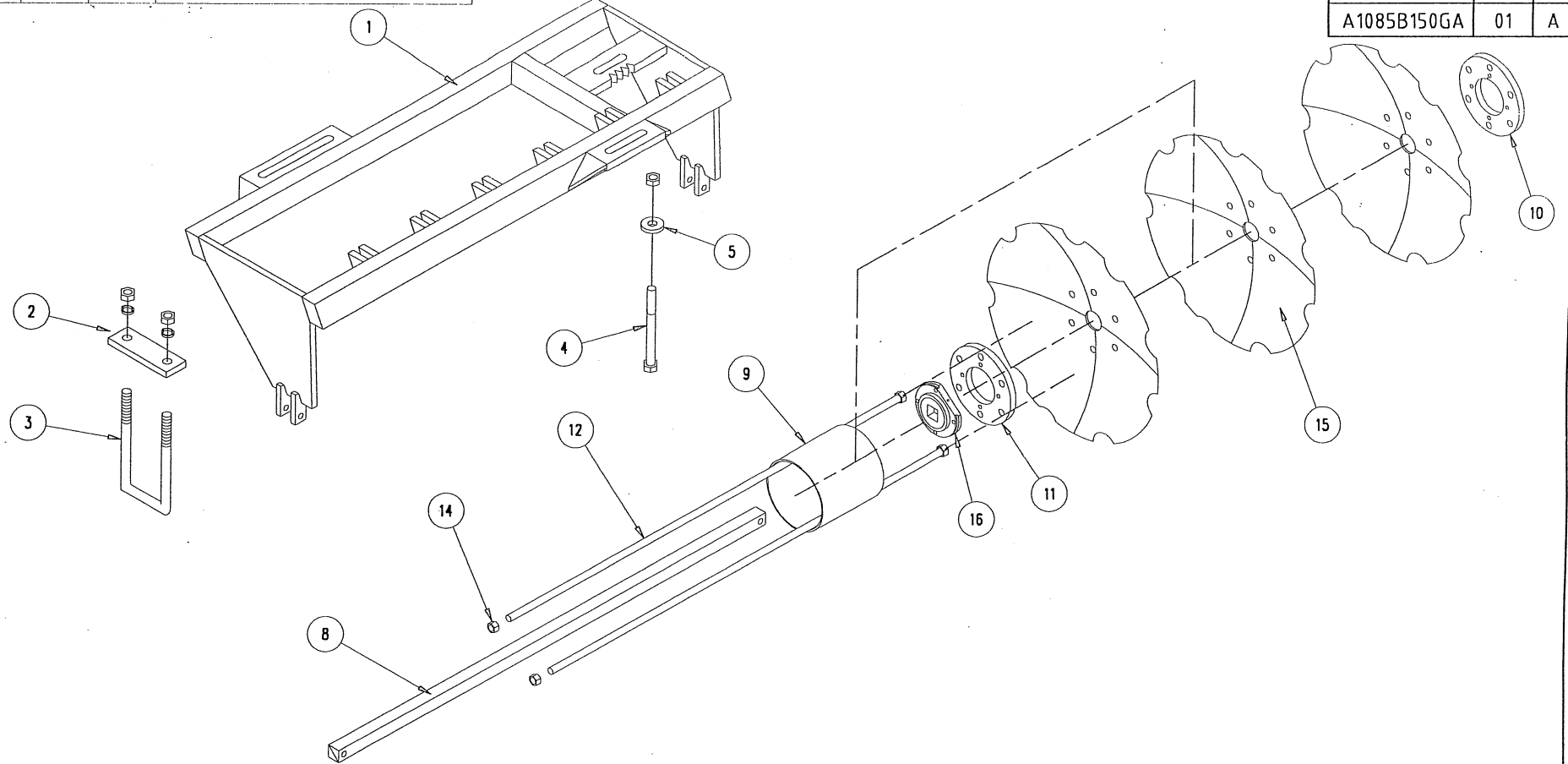
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.
20	S-FA-WA-SP-0006	BEARING HOUSING SPRING WASHER 1/2"SQ ZP	8	10	M0920PL20	B150 CONVEX BEARING HOUSING	1
19	S-FA-BO-UC-0402	BEARING HOUSING BOLT 1-1/2x1/2"UNC ZP	4	9	M0448PI21910-480	B260-PIPE SPACER	6
18	S-FA-BO-UC-0401	BEARING HOUSING BOLT 1-1/4x1/2"UNC ZP	4	8	M0684SQ40	B150-7 DISC AXLE 40mm SQ @ 1634	1
17	S-FA-WA-SP-0008	AXLE BOLT SPRING WASHER 5/8"SQ ZP	2	7	S-FA-NU-UC-0010	NUT 1"UNC ZP	5
16	M0922STORE	B150/160 OFFSET BEARING	2	6	S-FA-WA-SP-0010	SPRING WASHER 1" ZP	5
15	S-DS-SC-0008	SCALLOPED DISC 26"x6mm	7	5	S-FA-WA-FL-0028	GANG BOLT WASHER 1"12mm THK	4
14	S-FA-NU-UC-0008	TIE BOLT NUT 3/4"UNC ZP	6	4	S-FA-BO-UC-0804	GANG BOLT 4x1"UNC ZP	3
13	S-FA-WA-SP-0009	TIE BOLT SPRING WASHER 3/4"SQ ZP	6	3	S-FA-BO-UU-0202	"U"BOLT	1
12	M0694B150PA	B150 TIE BOLT 7 DISC GANG	6	2	M0563FL75-20	"U"BOLT PLATE	1
11	M0921PL20	B150 CONCAVE BEARING HOUSING	1	1	M0614B150GA	B150-724 CENTRE R/HAND REAR GANG	1

NAME: B150		TYPE: ASS		TITLE: B150-56/80PL CENTRE R/H REAR GANG		DRAWN I.J.S.		DATE 24/09/98		DRAWING		REV.			
APPEARS IN BOOK :						APPROVED		SCALE N.T.S.		DRAWING No. A1087B150GA		PAGE 01			
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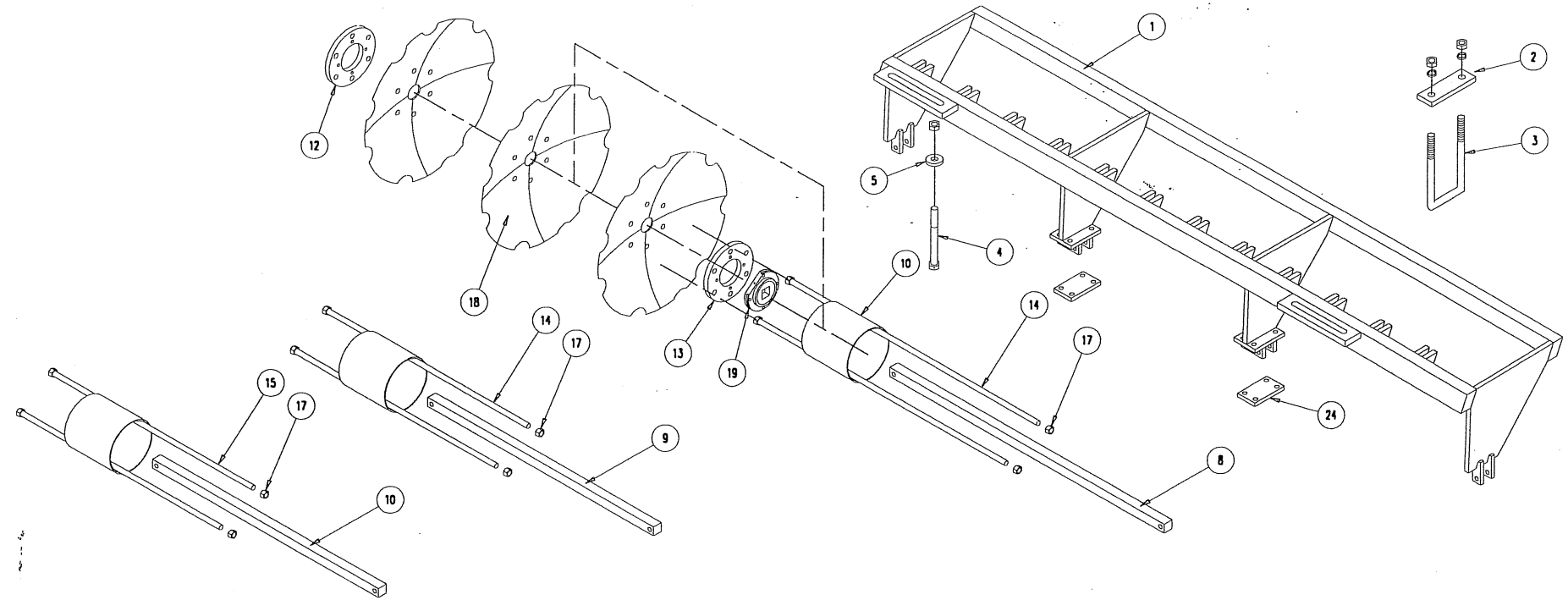
20	S-FA-WA-SP-0006	BEARING HOUSING SPRING WASHER 1/2"SQ ZP	8	10	M0920PL20	B150 CONVEX BEARING HOUSING	1
19	S-FA-BO-UC-0402	BEARING HOUSING BOLT 1-1/2x1/2"UNC ZP	4	9	M0448PI21910-480	B260-PIPE SPACER	6
18	S-FA-BO-UC-0401	BEARING HOUSING BOLT 1-1/4x1/2"UNC ZP	4	8	M0684SQ40	B150-7 DISC AXLE 40mm SQ @ 1634	1
17	S-FA-WA-SP-0008	AXLE BOLT SPRING WASHER 5/8"SQ ZP	2	7	S-FA-NU-UC-0010	NUT 1"UNC ZP	5
16	M0922STORE	B150/160 OFFSET BEARING	2	6	S-FA-WA-SP-0010	SPRING WASHER 1" ZP	5
15	S-DS-SC-0008	SCALLOPED DISC 26"x6mm	7	5	S-FA-WA-FL-0028	GANG BOLT WASHER 1"x12mm THK	4
14	S-FA-NU-UC-0008	TIE BOLT NUT 3/4"UNC ZP	6	4	S-FA-BO-UC-0804	GANG BOLT 4x1"UNC ZP	3
13	S-FA-WA-SP-0009	TIE BOLT SPRING WASHER 3/4"SQ ZP	6	3	S-FA-BO-UU-0202	"U"BOLT	1
12	M0694B150PA	B150 TIE BOLT 7 DISC GANG	6	2	M0563FL75-20	"U"BOLT PLATE	1
11	M0921PL20	B150 CONCAVE BEARING HOUSING	1	1	M0613B150GA	B150-724 CENTRE L/HAND REAR GANG	1
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.

NAME: B150		TYPE: ASS		TITLE: B150-56/80PL CENTRE L/H REAR GANG		DRAWN I.J.S.	DATE 24/09/98	DRAWING		REV.	
APPEARS IN BOOK :						APPROVED	SCALE N.T.S.	DRAWING No.	PAGE		
								A1086B150GA	01	A	
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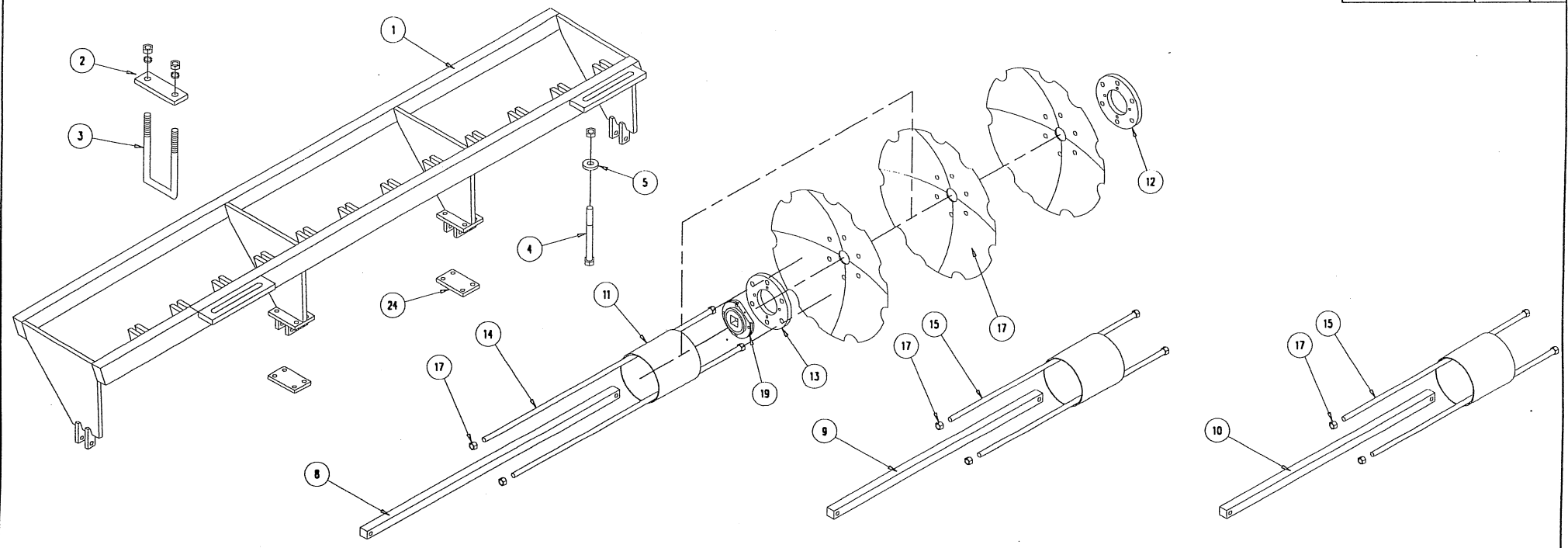
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.
20	S-FA-WA-SP-0006	BEARING HOUSING SPRING WASHER 1/2"SQ ZP	8	10	M0920PL20	B150 CONVEX BEARING HOUSING	1
19	S-FA-BO-UC-0402	BEARING HOUSING BOLT 1-1/2x1/2"UNC ZP	4	9	M0448PI21910-480	B260-PIPE SPACER	6
18	S-FA-BO-UC-0401	BEARING HOUSING BOLT 1-1/4x1/2"UNC ZP	4	8	M0684SQ40	B150-7 DISC AXLE 40mm SQ @ 1634	1
17	S-FA-WA-SP-0008	AXLE BOLT SPRING WASHER 5/8"SQ ZP	2	7	S-FA-NU-UC-0010	NUT 1"UNC ZP	5
16	M0922STORE	B150/160 OFFSET BEARING	2	6	S-FA-WA-SP-0010	SPRING WASHER 1" ZP	5
15	S-DS-SC-0008	SCALLOPED DISC 26"x6mm	7	5	S-FA-WA-FL-0028	GANG BOLT WASHER 1"12mm THK	4
14	S-FA-NU-UC-0008	TIE BOLT NUT 3/4"UNC ZP	6	4	S-FA-BO-UC-0804	GANG BOLT 4x1"UNC ZP	3
13	S-FA-WA-SP-0009	TIE BOLT SPRING WASHER 3/4"SQ ZP	6	3	S-FA-BO-UU-0202	"U"BOLT	1
12	M0694B150PA	B150 TIE BOLT 7 DISC GANG	6	2	M0563FL75-20	"U"BOLT PLATE	1
11	M0921PL20	B150 CONCAVE BEARING HOUSING	1	1	M0642B150GA	B150-756/80 CENTRE R/HAND FRONT GANG	1

NAME: B150		TYPE: ASS		TITLE: B150-56/80PL CENTRE R/H FRONT GANG				DRAWN I.J.S.		DATE 24/09/98		DRAWING		REV.					
APPEARS IN BOOK :								APPROVED		SCALE N.T.S.		DRAWING No. A1085B150GA		PAGE 01					
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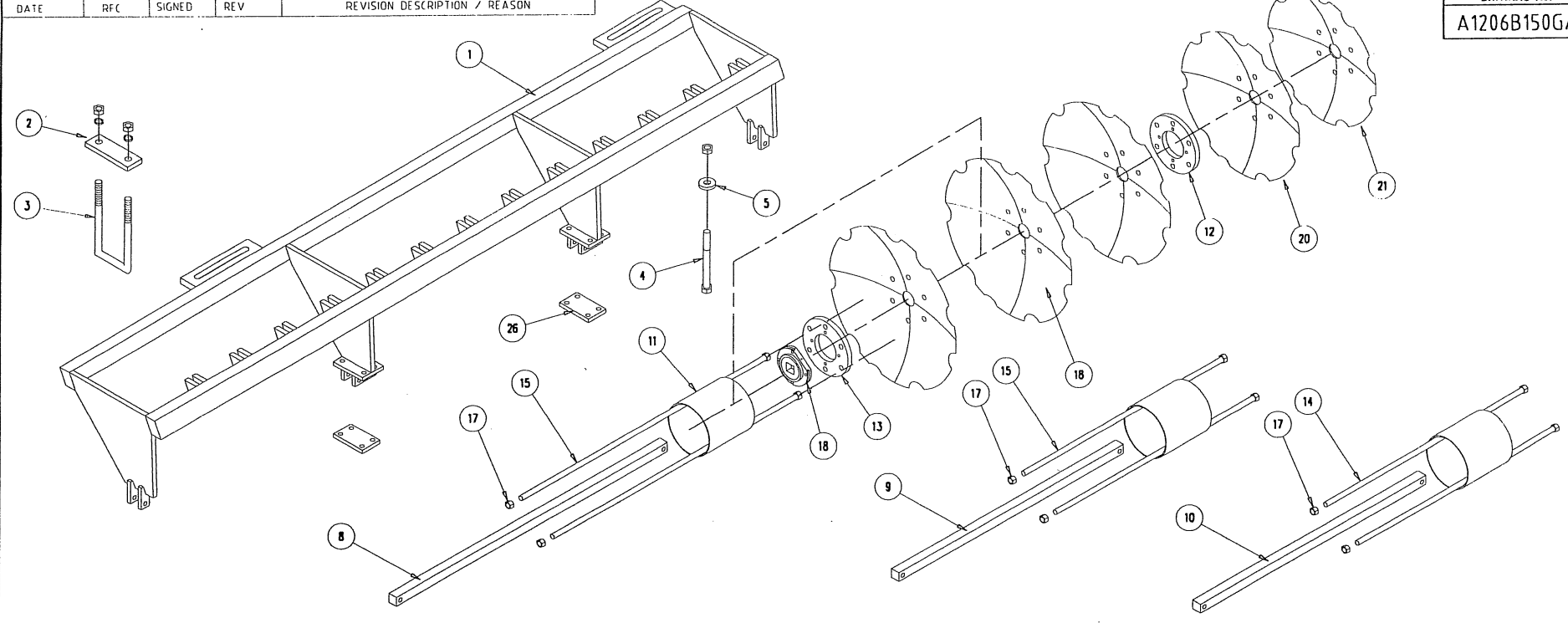
				14	M0446B260PA	B260 TIE BOLT 5 DISC GANG	6
27	S-FA-WA-SP-0006	BEARING HOUSING SPRING WASHER 1/2"SQ ZP	24	13	M0921PL20	B150 CONCAVE BEARING HOUSING	3
26	S-FA-BO-UC-0402	BEARING HOUSING BOLT 1-1/2x1/2"UNC ZP	12	12	M0920PL20	B150 CONVEX BEARING HOUSING	3
25	S-FA-BO-UC-0401	BEARING HOUSING BOLT 1-1/4x1/2"UNC ZP	12	11	M0448PI21910-480	B260-PIPE SPACER	10
24	M0699FL150-16	B150-AXLE BACKING PLATE	2	10	M0686SQ40	B150-4 DISC AXLE 40mm SQ @ 928	1
23	S-FA-BO-UC-0608	AXLE BACKING PLATE BOLT 3x5/8"UNC ZP	8	9	M0700SQ40	B150-4 DISC AXLE 40mm SQ @ 936	1
22	S-FA-WA-FL-0004	AXLE BOLT FLAT WASHER 5/8" ZP	8	8	M0689SQ40	B150-5 DISC AXLE 40mm SQ @ 1171	1
21	S-FA-WA-SP-0005	AXLE BOLT SPRING WASHER 7/16"SQ ZP	8	7	S-FA-NU-UC-0010	NUT 1"UNC ZP	6
20	S-FA-WA-SP-0008	AXLE BOLT SPRING WASHER 5/8"SQ ZP	10	6	S-FA-WA-SP-0010	SPRING WASHER 1" ZP	6
19	M0922STORE	B150/160 OFFSET BEARING	6	5	S-FA-WA-FL-0028	GANG BOLT WASHER 1"12mm THK	3
18	S-DS-SC-0008	SCALLOPED DISC 26"x6mm	13	4	S-FA-BO-UC-0804	GANG BOLT 4x1"UNC ZP	2
17	S-FA-NU-UC-0008	TIE BOLT NUT 3/4"UNC ZP	18	3	S-FA-BO-UU-0202	"U"BOLT	2
16	S-FA-WA-SP-0009	TIE BOLT SPRING WASHER 3/4"SQ ZP	18	2	M0563FL75-20	"U"BOLT PLATE	2
15	M0693B150PA	B150 TIE BOLT 4 DISC GANG	12	1	M0655B150GA	B150-780 L/HAND FRONT WING GANG	1
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.

NAME: B150		TYPE: ASS		TITLE: B150-80PL L/H FRONT WING GANG		DRAWN L.J.S.		DATE 28/10/98		DRAWING		REV.	
APPEARS IN BOOK :						APPROVED		SCALE N.T.S.		DRAWING No. A1204B150GA		PAGE 01	
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27	S-FA-WA-SP-0006	BEARING HOUSING SPRING WASHER 1/2"SQ ZP	24	13	M0921PL20	B150 CONCAVE BEARING HOUSING	3
26	S-FA-BO-UC-0402	BEARING HOUSING BOLT 1-1/2x1/2"UNC ZP	12	12	M0920PL20	B150 CONVEX BEARING HOUSING	3
25	S-FA-BO-UC-0401	BEARING HOUSING BOLT 1-1/4x1/2"UNC ZP	12	11	M0448PI21910-480	B260-PIPE SPACER	10
24	M0699FL150-16	B150-AXLE BACKING PLATE	2	10	M0686SQ40	B150-4 DISC AXLE 40mm SQ @ 928	1
23	S-FA-BO-UC-0608	AXLE BACKING PLATE BOLT 3x5/8"UNC ZP	8	9	M0700SQ40	B150-4 DISC AXLE 40mm SQ @ 936	1
22	S-FA-WA-FL-0004	AXLE BOLT FLAT WASHER 5/8" ZP	8	8	M0689SQ40	B150-5 DISC AXLE 40mm SQ @ 1171	1
21	S-FA-WA-SP-0005	AXLE BOLT SPRING WASHER 7/16"SQ ZP	8	7	S-FA-NU-UC-0010	NUT 1"UNC ZP	6
20	S-FA-WA-SP-0008	AXLE BOLT SPRING WASHER 5/8"SQ ZP	10	6	S-FA-WA-SP-0010	SPRING WASHER 1" ZP	6
19	M0922STORE	B150/160 OFFSET BEARING	6	5	S-FA-WA-FL-0028	GANG BOLT WASHER 1"12mm THK	3
18	S-DS-SC-0008	SCALLOPED DISC 26"x6mm	13	4	S-FA-BO-UC-0804	GANG BOLT 4x1"UNC ZP	2
17	S-FA-NU-UC-0008	TIE BOLT NUT 3/4"UNC ZP	18	3	S-FA-BO-UU-0202	"U"BOLT	2
16	S-FA-WA-SP-0009	TIE BOLT SPRING WASHER 3/4"SQ ZP	18	2	M0563FL75-20	"U"BOLT PLATE	2
15	M0693B150PA	B150 TIE BOLT 4 DISC GANG	12	1	M0656B150GA	B150-780 R/HAND FRONT WING GANG	1
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.

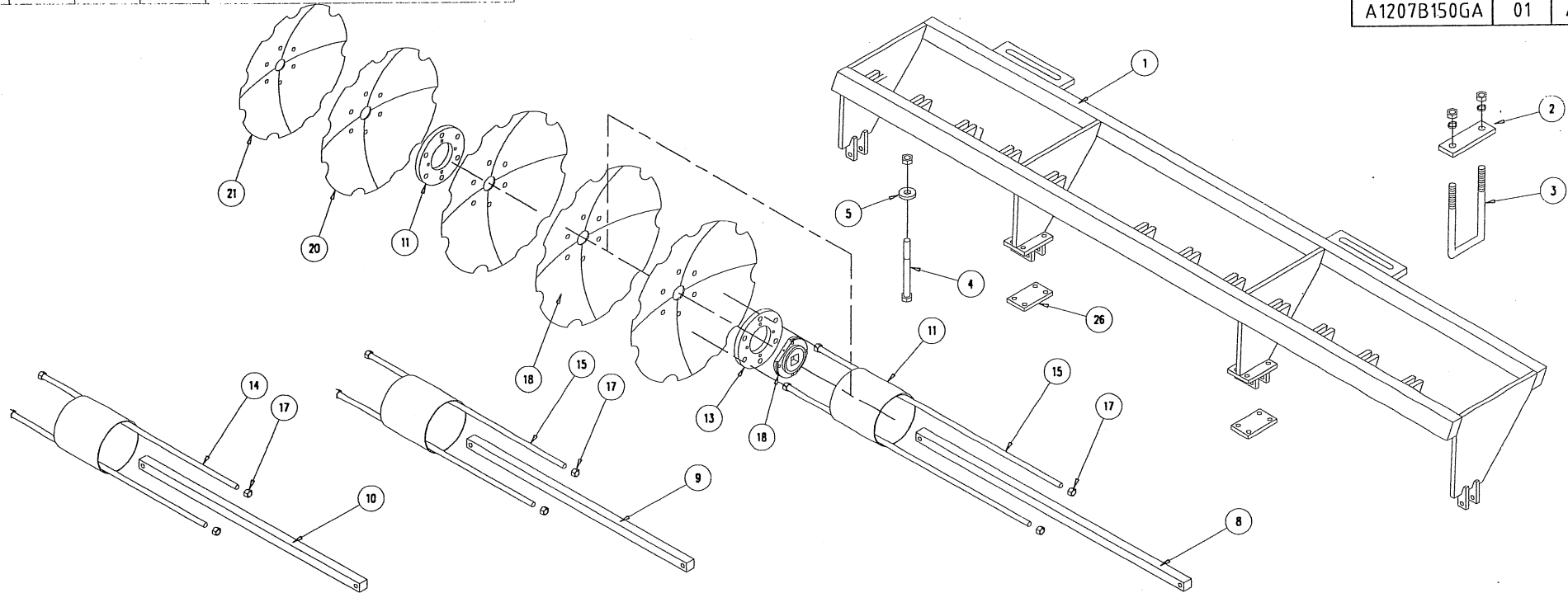
NAME: B150	TYPE: ASS	TITLE:	DRAWN L.J.S.	DATE 28/10/98	DRAWING		REV.
APPEARS IN BOOK :		B150-80PL R/H FRONT WING GANG	APPROVED	SCALE N.T.S.	A1205B150GA	PAGE 01	A
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BONEL MANUFACTURING Ltd.		DO NOT SCALE					



29	S-FA-WA-SP-0006	BEARING HOUSING SPRING WASHER 1/2"SQ ZP	24	15	M0446B260PA	B260 TIE BOLT 5 DISC GANG	6
28	S-FA-BO-UC-0402	BEARING HOUSING BOLT 1-1/2x1/2"UNC ZP	12	14	M0693B150PA	B150 TIE BOLT 4 DISC GANG	6
27	S-FA-BO-UC-0401	BEARING HOUSING BOLT 1-1/4x1/2"UNC ZP	12	13	M0921PL20	B150 CONCAVE BEARING HOUSING	3
26	M0699FL150-16	B150-AXLE BACKING PLATE	2	12	M0920PL20	B150 CONVEX BEARING HOUSING	3
25	S-FA-BO-UC-0608	AXLE BACKING PLATE BOLT 3x5/8"UNC ZP	8	11	M0448PI21910-480	B260-PIPE SPACER	11
24	S-FA-WA-FL-0004	AXLE BOLT FLAT WASHER 5/8" ZP	8	10	M0688SQ40	B150-4 DISC AXLE 40mm SQ @ 936	1
23	S-FA-WA-SP-0005	AXLE BOLT SPRING WASHER 7/16"SQ ZP	4	9	M0701SQ40	B150-5 DISC AXLE 40mm SQ @ 1171	1
22	S-FA-WA-SP-0008	AXLE BOLT SPRING WASHER 5/8"SQ ZP	10	8	M0687SQ40	B150-5 DISC AXLE 40mm SQ @ 1163	1
21	S-DS-FI-0002	FILLER DISC 22"x5mm	1	7	S-FA-NU-UC-0010	NUT 1"UNC ZP	6
20	S-DS-SC-0002	SCALLOPED DISC 24"x6mm	1	6	S-FA-WA-SP-0010	SPRING WASHER 1" ZP	6
19	M0922STORE	B150/160 OFFSET BEARING	6	5	S-FA-WA-FL-0028	GANG BOLT WASHER 1"12mm THK	3
18	S-DS-SC-0008	SCALLOPED DISC 26"x6mm	12	4	S-FA-BO-UC-0804	GANG BOLT 4x1"UNC ZP	2
17	S-FA-NU-UC-0008	TIE BOLT NUT 3/4"UNC ZP	18	3	S-FA-BO-UU-0202	"U"BOLT	2
16	S-FA-WA-SP-0009	TIE BOLT SPRING WASHER 3/4"SQ ZP	18	2	M0563FL75-20	"U"BOLT PLATE	2
15	M0446B260PA	B260 TIE BOLT 5 DISC GANG	6	1	M0657B150GA	B150-780 L/HAND REAR WING GANG	1
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.

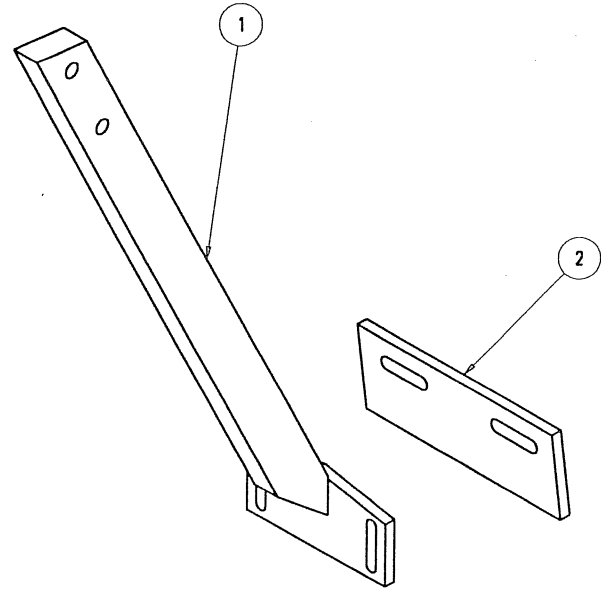
NAME: B150	TYPE: ASS	TITLE: B150-80PL L/H REAR WING GANG	DRAWN L.J.S.	DATE 28/10/98	DRAWING No. A1206B150GA		PAGE 01	REV. A
APPEARS IN BOOK :			APPROVED	SCALE N.T.S.				

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			DO NOT SCALE		

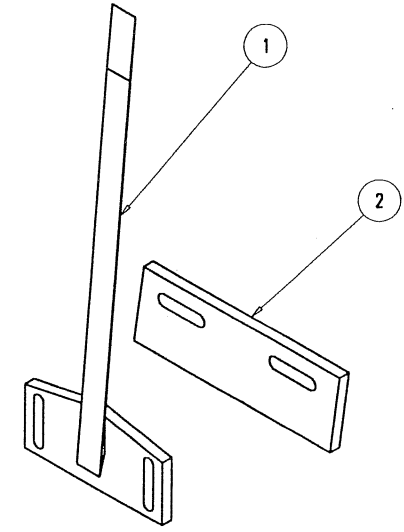


				15	M0446B260PA	B260 TIE BOLT 5 DISC GANG	6
29	S-FA-WA-SP-0006	BEARING HOUSING SPRING WASHER 1/2"SQ ZP	24	14	M0693B150PA	B150 TIE BOLT 4 DISC GANG	6
28	S-FA-BO-UC-0402	BEARING HOUSING BOLT 1-1/2x1/2"UNC ZP	12	13	M0921PL20	B150 CONCAVE BEARING HOUSING	3
27	S-FA-BO-UC-0401	BEARING HOUSING BOLT 1-1/4x1/2"UNC ZP	12	12	M0920PL20	B150 CONVEX BEARING HOUSING	3
26	M0699FL150-16	B150-AXLE BACKING PLATE	2	11	M0448PI21910-480	B260-PIPE SPACER	11
25	S-FA-BO-UC-0608	AXLE BACKING PLATE BOLT 3x5/8"UNC ZP	8	10	M0688SQ40	B150-4 DISC AXLE 40mm SQ @ 936	1
24	S-FA-WA-FL-0004	AXLE BOLT FLAT WASHER 5/8" ZP	8	9	M0701SQ40	B150-5 DISC AXLE 40mm SQ @ 1171	1
23	S-FA-WA-SP-0005	AXLE BOLT SPRING WASHER 7/16"SQ ZP	4	8	M0687SQ40	B150-5 DISC AXLE 40mm SQ @ 1163	1
22	S-FA-WA-SP-0008	AXLE BOLT SPRING WASHER 5/8"SQ ZP	10	7	S-FA-NU-UC-0010	NUT 1"UNC ZP	6
21	S-DS-FI-0002	FILLER DISC 22"x5mm	1	6	S-FA-WA-SP-0010	SPRING WASHER 1" ZP	6
20	S-DS-SC-0002	SCALLOPED DISC 24"x6mm	1	5	S-FA-WA-FL-0028	GANG BOLT WASHER 1"12mm THK	3
19	M0922STORE	B150/160 OFFSET BEARING	6	4	S-FA-BO-UC-0804	GANG BOLT 4x1"UNC ZP	2
18	S-DS-SC-0008	SCALLOPED DISC 26"x6mm	12	3	S-FA-BO-UU-0202	"U"BOLT	2
17	S-FA-NU-UC-0008	TIE BOLT NUT 3/4"UNC ZP	18	2	M0563FL75-20	"U"BOLT PLATE	2
16	S-FA-WA-SP-0009	TIE BOLT SPRING WASHER 3/4"SQ ZP	18	1	M0658B150GA	B150-780 R/HAND REAR WING GANG	1
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.

NAME: B150		TYPE: ASS		TITLE:		DRAWN	I.J.S.	DATE	28/10/98	DRAWING		REV.					
APPEARS IN BOOK :				B150-80PL R/H REAR WING GANG				APPROVED	SCALE	N.T.S.	A1207B150GA	PAGE	01	A			
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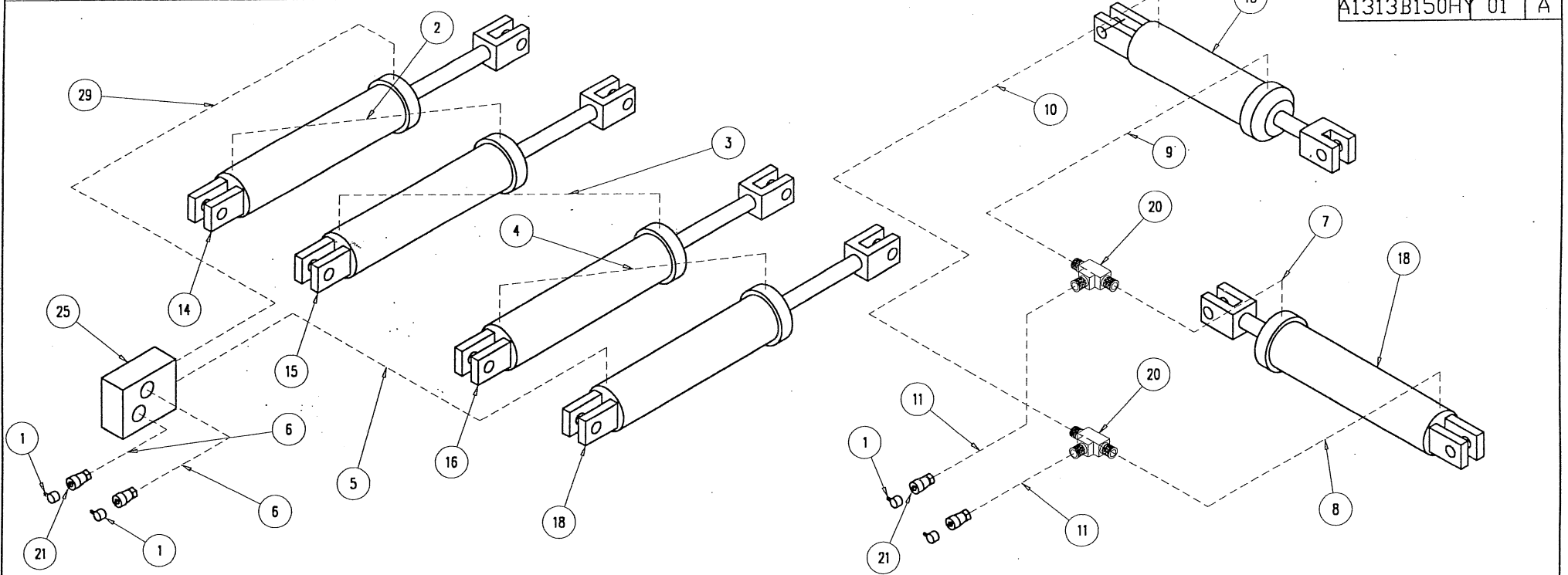
LEFT HAND "T" TYPE SCRAPER



RIGHT HAND "T" TYPE SCRAPER

8	S-FA-NU-UC-0005	NUT 1/2*UNC ZP	2
7	S-FA-WA-SP-0006	SPRING WASHER 1/2*SQ ZP	2
6	S-FA-BQ-UC-0406	*T*BAR MOUNT BOLT 2-1/2x1/2*UNC ZP	2
5	S-FA-WA-SP-0004	SPRING WASHER 3/8*SQ ZP	2
4	S-FA-WA-FL-0003	FLAT WASHER 3/8* ZP	2
3	S-FA-CUP-BW-005	SCPR.MNT.BOLT 1-1/4x3/8*BSW CUP/HD & NUT	2
2	MC0136FL75-10	B150 9*SCRAPER	1
1	MC0134B150MS	B150/160 *T*TYPE SCRAPER (L&R HAND)	1
ITEM	PART/ASS. No.	DESCRIPTION	QTY.

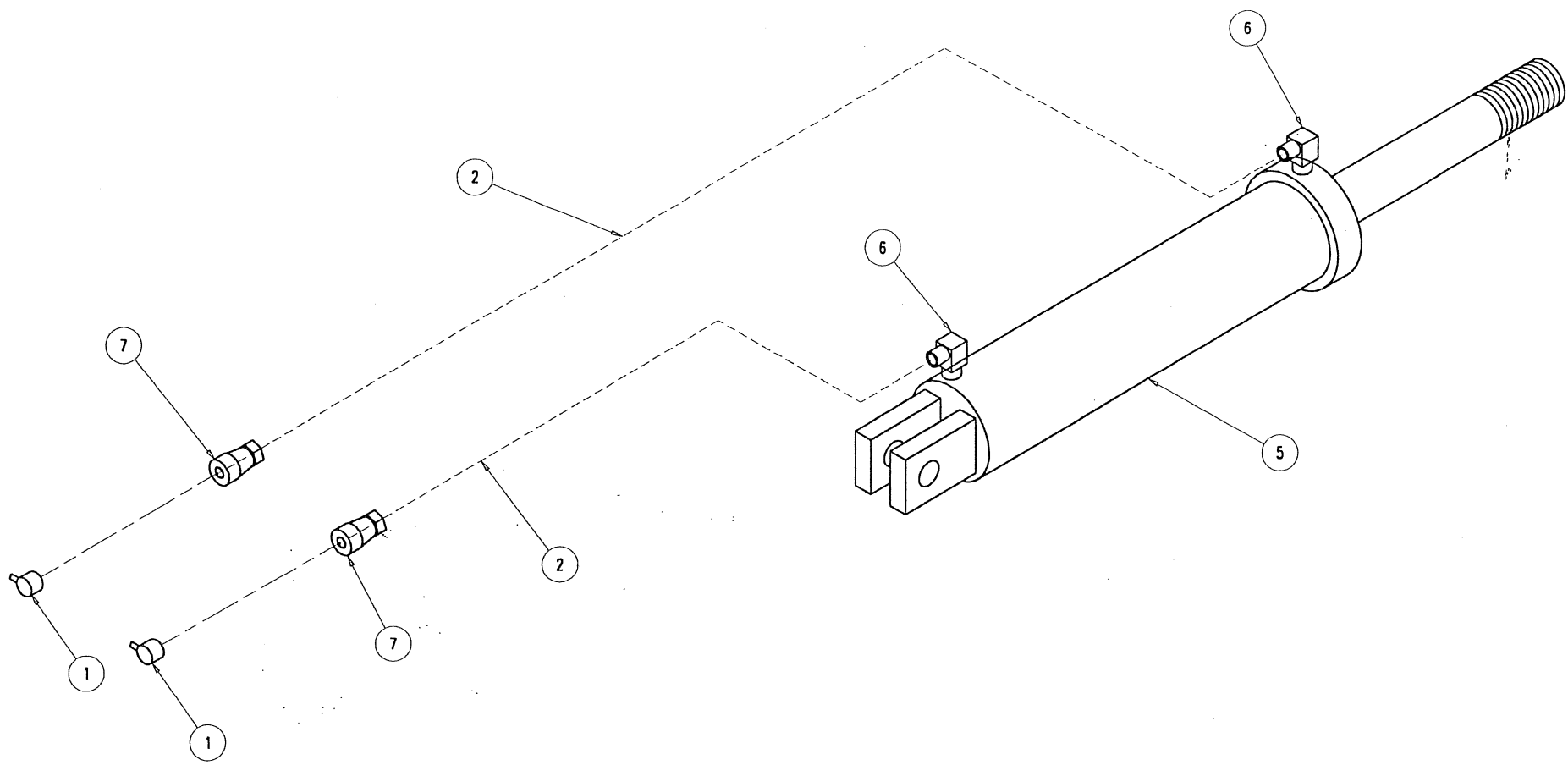
NAME: B150	TYPE: ASS	TITLE:	DRAWN I.J.S.	DATE 28/10/98	DRAWING		REV.
APPEARS IN BOOK :		B150 "T" TYPE SCRAPER ASSEMBLY	APPROVED	SCALE N.T.S.	DRAWING No.	PAGE	
					A1203B150GA	01	A
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DO NOT SCALE					GENERAL TOLERANCES Linear : 1mm Angular 1 deg.		DEFAULT MACHINING TOLERANCE +0.00 -0.17



29	S-HY-FT-0850	1/2"HYD HOSE 4700mm LONG(4th. ram-lock valve)	1	15	S-HY-RA-PH-0103	R/H M/F WHEEL LEG CYLINDER4.0x18 PHASING	1
28	S-HY-FT-0027	HOSE END	4	14	S-HY-RA-PH-0041	R/H WING WHEEL LEG CYLINDER3.5x18 PHASING	1
27	S-HY-FT-0557	ELBOW	2	13	S-HY-FT-0027	HOSE END	18
26	S-HY-FT-0544	NIPPLE	2	12	S-HY-FT-0025	HOSE END	4
25	S-HY-VA-0083	LOCK VALVE	1	11	S-HY-FT-0850	1/2"HYD HOSE 5300mm LONG(tractor-winglift Tee)	2
24	S-HY-FT-0003	HYD.HOSE CLAMP CENTRE SECTION	26	10	S-HY-FT-0850	1/2"HYD HOSE 1300mm LONG(winglift Tee-r/h ram)	1
23	S-HY-FT-0004	HYD.HOSE CLAMP TOP PLATE	13	9	S-HY-FT-0850	1/2"HYD HOSE 1700mm LONG(winglift Tee-r/h ram)	1
22	S-HY-FT-0005	HYD.HOSE CLAMP BOLT	13	8	S-HY-FT-0850	1/2"HYD HOSE 1300mm LONG(winglift Tee-l/h ram)	1
21	S-HY-CD-0010	BREAKAWAY COUPLING	4	7	S-HY-FT-0850	1/2"HYD HOSE 1800mm LONG(winglift Tee-l/h ram)	1
20	S-HY-FT-0736	HYDRAULIC FITTING TEE	2	6	S-HY-FT-0850	1/2"HYD HOSE 3700mm LONG(tractor-lock valve)	2
19	S-HY-FT-0421	HYDRAULIC FITTING ELBOW	12	5	S-HY-FT-0850	1/2"HYD HOSE 3900mm LONG(lock valve-1st.ram)	1
18	S-HT-RA-BL-0007	WING LIFT CYLINDER 5.0x24	2	4	S-HY-FT-0850	1/2"HYD HOSE 3900mm LONG(1st. ram-2nd. ram)	1
17	S-HY-RA-PH-0184	L/H WING WHEEL LEG CYLINDERS5.0x18 PHASING	1	3	S-HY-FT-0850	1/2"HYD HOSE 4600mm LONG(2nd. ram-3rd.ram)	1
16	S-HY-RA-PH-0151	L/H M/F WHEEL LEG CYLINDER4.5x18 PHASING	1	2	S-HY-FT-0850	1/2"HYD HOSE 3700mm LONG(3rd. ram-4th. ram)	1
1	S-HY-FT-0011	HOSE END CAP (BLUE)	4	1	S-HY-FT-0011	HOSE END CAP (BLUE)	4
ITEM	PART/ASS. No.	DESCRIPTION	QTY.	ITEM	PART/ASS. No.	DESCRIPTION	QTY.

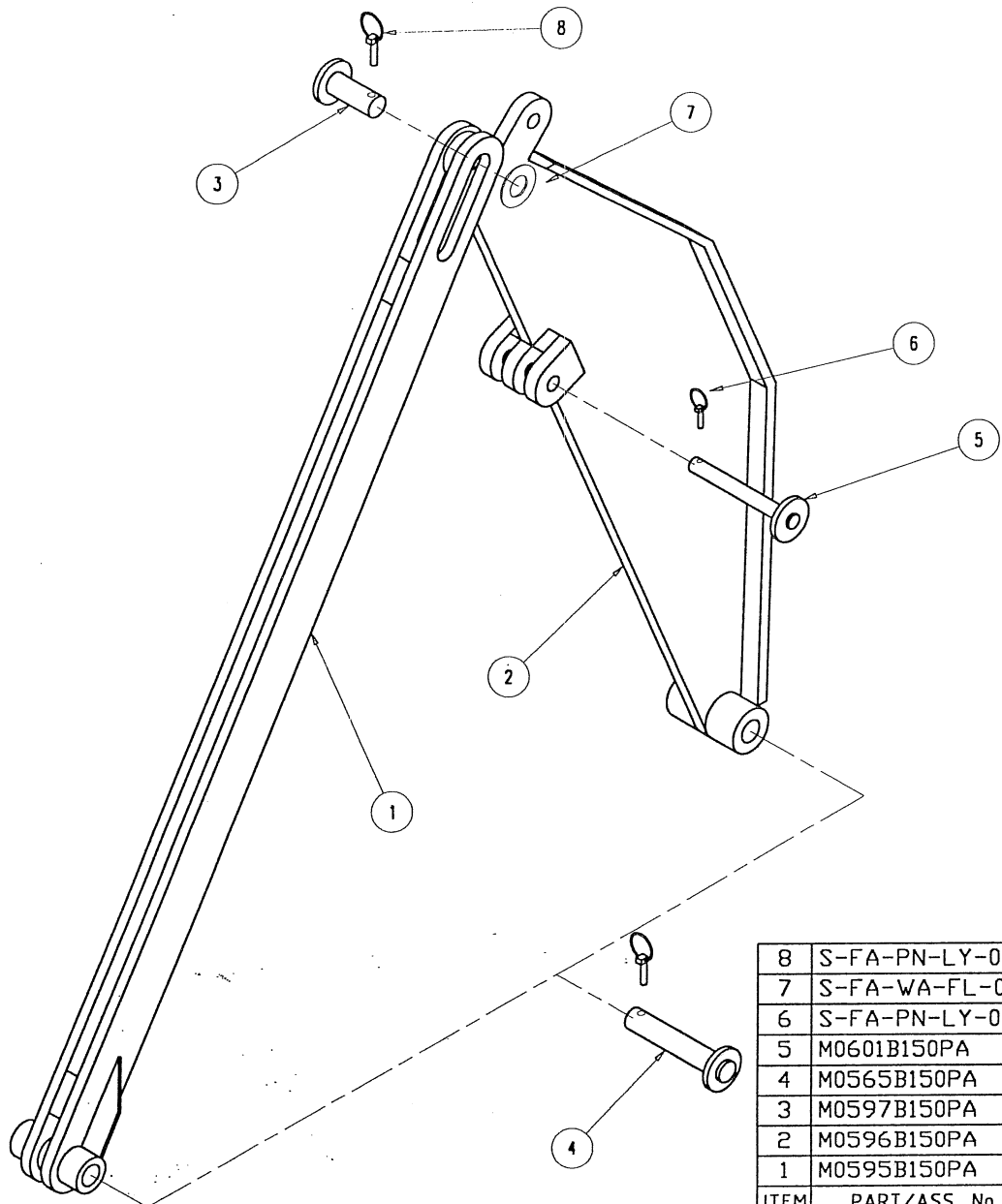
NAME: B150		TYPE: ASS		TITLE: B150-80 STD HYDRAULIC KIT				DRAWN I.J.S.		DATE 28/10/98		DRAWING No.		PAGE		REV.	
APPEARS IN BOOK :								APPROVED		SCALE N.T.S.		A1313B150HY 01		A			
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DO NOT SCALE



ITEM	PART/ASS. No.	DESCRIPTION	QTY.
7	S-HY-CD-0010	BREAKAWAY COUPLING	2
6	S-HY-FT-0457	ELBOW	2
5	S-HY-RA-SG-0307	PITCH CONTROL CYLINDER 4x8	1
4	S-HY-FT-0807	HOSE END	2
3	S-HY-FT-0021	HOSE END	2
2	S-HY-FT-0853	1/2" HYD HOSE 3200mm LONG	2
1	S-HY-FT-0011	HYD HOSE END CAP (BLUE)	2

NAME: B150	TYPE: ASS	TITLE: B150-(400x8) HYD. PITCH HYD. KIT	DRAWN I.J.S.	DATE 29/10/98	DRAWING No. A1306B150HY		PAGE 01	REV. A
APPEARS IN BOOK :			APPROVED	SCALE N.T.S.				
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ITEM	PART/ASS. No.	DESCRIPTION	QTY.
8	S-FA-PN-LY-0004	11mm LYNCH PIN	3
7	S-FA-WA-FL-0012	1-1/2" FLAT WASHER ZP	1
6	S-FA-PN-LY-0001	7/16 LYNCH PIN	1
5	M0601B150PA	B150-ALL TRIPLE LUG RAM PIN	2
4	M0565B150PA	B150-724/40 LEVELLING ROD PIN	2
3	M0597B150PA	B150-756/108 SCISSOR ARM PIN	1
2	M0596B150PA	B150-756/108 MAIN FRAME SCISSOR ARM	1
1	M0595B150PA	B150-756/108 WING SCISSOR ARM	1

NAME: B150 TYPE: ASS
 APPEARS IN BOOK :

TITLE: **B150-ALL SCISSOR ASSEMBLY**

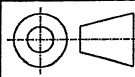
DRAWN I.J.S.	DATE 29/10/98	DRAWING No.	PAGE	REV.
APPROVED	SCALE N.T.S.	A0855B150M	F 01	A

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DO NOT SCALE



P&H RURAL
 from planting to harvesting



Unless Otherwise Stated All Dimensions Are in Millimetres

OPEN MACHINING TOLERANCE
+0.8
-0.8

GENERAL TOLERANCES
Linear: 1mm
Angular: 1 deg.

DEFAULT MACHINING TOLERANCE
+0.00
-0.17