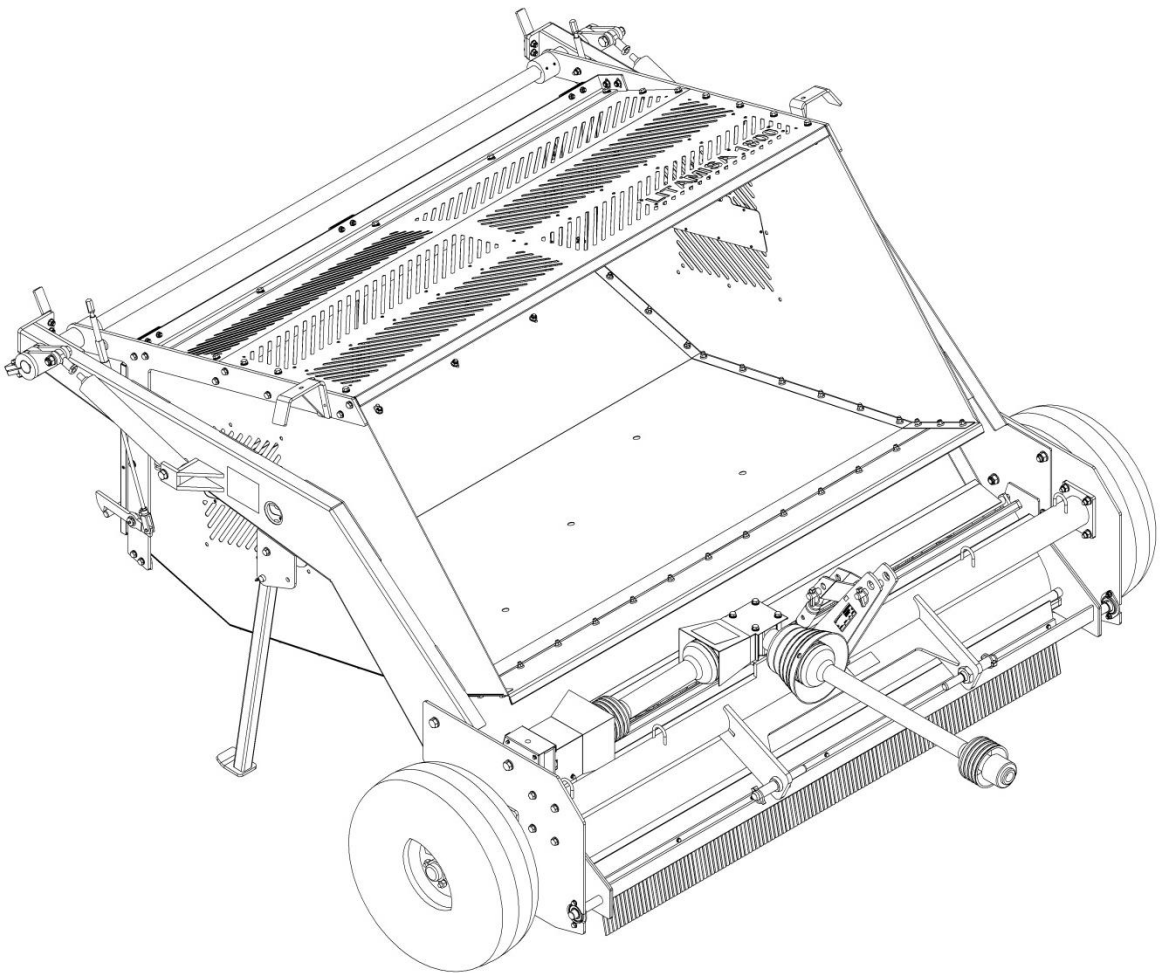


# sisis<sup>®</sup>

## LITAMISA 1800 INSTRUCTION MANUAL



**LITAMISA 1800 CN Code: 84328000**

**Manufacturer:-** Howardson Ltd, Howardson Works, Kirk Langley, Derby, DE6 4NJ. UK

**Owner of Technical Document:-** Mr I.D. Howard, Howardson Ltd, Howardson Works Kirk Langley, Derby, DE6 4NJ, UK

I the under signed Declare that these machines:-

**Tested at:-** Howardson Works test site September 2011

Complies with the applicable requirements of:-  
- Machine Directive                      2006/42/EC

**Managing Director**



**Ian Howard**

## SERIAL NUMBERS



**NOTE:-**

*MAKE A NOTE OF THE SERIAL NUMBER OF YOUR MACHINE AND ALWAYS QUOTE IT IN ANY COMMUNICATION WITH PERSONNEL AT DENNIS.*

**MACHINE SERIAL NUMBER**

## INTRODUCTION

The reliability and quality of performance of the **LITAMISA 1800** depends upon some simple care maintenance carried out regularly. This manual has been prepared to allow the user to carry out all such work.

It is advisable to read the instructions carefully. Proper care and attention will enable the machine to give a continuous, satisfactory, and reliable service. Failure to carry out regular lubrication and maintenance as outlined in this manual may render any guarantee or warranty invalid.

In the case of any difficulty, or if further information or advice is required, our Service Department is always at your call. In the interests of speed and accuracy of information please quote the serial numbers of the machine and engine when making enquiries.

For the machine, this is to be found on a plate attached to the side frame. The engine number is stamped on either the crank case or the gear casing facing towards the front of the machine. We suggest you write the numbers on the front page of this book.

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## TECHNICAL DATA

MODEL	LITAMISA 1800	
WIDTH (mm)	2720	
LENGTH (mm)	2540	
HEIGHT (mm)	1140	
WEIGHT (Kg)	564	
WORKING WIDTH (mm)	1800	
HOPPER CAPACITY	2m <sup>3</sup> 1982L	
WORKING SPEEDS (approx)	4.8km/hr 3mph (Wet materials) 9.6km/hr 6mph (Dry materials)	
TIPPING HEIGHT CLEARANCE (mm)	1520	
GROUND COVERAGE (6mph)	24,281 Sq.mtrs.hr 29,0444 sq.yd.hr	
RECOMMENDED TRACTOR	30KW – 40hp	

## IMPORTANT SAFETY INTRODUCTIONS



### **CAUTION:-**

*READ THE INSTRUCTIONS. We want you to obtain the best performances from this machine. If you have any difficulty in carrying out the following instructions please contact your local SISIS dealer.*

### **NEVER**

- Carry out adjustments whilst the machine is running.
- Allow any unauthorised person to handle machines in anyway at any time.
- Operate the machine with the hopper in the raised position.

### **ALWAYS**

- Read the operating instructions carefully and understand the controls before commencing work.
- Before starting work always visually check machine for damage or wear to parts.
- Look behind before starting to reverse and watch out for children or pedestrians.
- Switch off the power before making adjustments or repairs and never lift or carry a machine whilst any parts are moving.

### **RESPECT**

- Powered machines. Always keep hands and feet clear of moving parts and remember that bush drums can continue to rotate even after the power unit is switched off.

*PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE USING THIS IMPLEMENT*

We want you to obtain the best performance from this machine. If you have any difficulties after reading these operating instructions, please contact us or your local SISIS Territory Manager or SISIS Dealer.

## Operation Principle

The SISIS Hi-Tip Litamisa is a tractor mounted sweeper and collector with 6ft (183cm) sweeping width. It collects leaves, litter, grass cuttings etc from grass areas such as golf fairways, parkland, playing fields or hard surfaces such as work surrounds, car parks etc. The hard wearing SISIS patented spiral brushes are power driven from the tractor power take off shaft and rotate at high speed driving the collected litter into the large capacity hopper. When the hopper is full it can be emptied without the operator leaving the tractor seat. The counter balanced hopper then returns automatically to the working position. The high tip facility allows discharge of refuse into trailers or skips. To ensure stability for high lift discharge it is recommended that the minimum tractor size is 40hp. The Litamisa can be safely transported between sites on public roads, raised and locked on the tractors hydraulic lift and because it is no higher than the tractor, can pass under trees without difficulty.

## Hopper

The hopper is galvanised to prevent rusting and has support legs at both sides for storage and easy attachment to the tractor. When connected to the tractor hydraulics the rams on each side of the hopper push upwards until the rear spring loaded catches encounter the stops, which automatically open the rear emptying door. When the hopper is lowered the rear door shuts. The machine may be lifted to tip into a skip or trailer. The hopper capacity is 2 cubic metres (70 cu.ft.)

## How to fit or replace brushes

Remove guard

Split chain at connecting link

Remove bolts from bearing

Remove bolts from bearing at opposite end of unit.

Brush shaft may now be removed from unit

Remove sel lock pin from brush shaft

Brushes may now be removed from shaft.

Replace with new brushes ensuring direction of spiral is correct to exploded drawing.

*REVERSE ABOVE PROCEDURES TO REASSEMBLE*

## Tractor Equipment

It is essential that the tractor (minimum size 40hp) which is to be used to operate the Litamisa is fitted with the following equipment to provide safe and correct operation of the machine.

a) 40hp (30kw) or above with 3 point hydraulic linkage (category 1 or 2)

b) Front weights

c) Screw type top link

d) 13/8in diameter (BSI) 6 splined PTO shaft. Working speed 540rpm (approximately)

e) Stabiliser brackets and arms

f) Auxiliary hydraulic valve single acting with quick release adaptor 3/8in BSP (tipping trailer coupling connection)

## Attaching the litamisa to the tractor

If category 1 linkage is to be used, first fit the stabiliser bars to the pins on the machine, leaving the free ends of the bars to rest on the ground. Remove the cover from the tractor power take off shaft and store in a safe place.

Align the tractor with the machine. Fit the hydraulic lift arms and secure with the retaining pins.

Fit and secure the tractor top link and adjust to fit top link pin to machine. Secure top link pin with linch pin. Lift the machine clear of the ground (not more than 150mm (6ins)). Stop the tractor engine and fit the stabiliser bars to the tractor.

**IT IS NOT SAFE TO LIFT THE MACHINE WITHOUT RETAINING PINS IN POSITION.**

Fit the PTO drive shaft ensuring it is clean and lightly oiled. Ensure that the locking plunger returns to mate with the groove cut in the splined shaft. On no account should the two halves of the PTO shaft be allowed to "bottom".

## Most important for all PTO shafts

There should be a gap of approximately 37mm (1 1/2ins) from the fully closed position. It may be necessary to adjust the top link to achieve this. With some tractors it may be necessary to cut the PTO drive shaft with a saw to obtain the necessary clearance gap.

### Drive shaft safety

It is important for the personal safety of the operator that PTO shaft guards (where fitted) are maintained to the highest standard. The protection guards must cover the whole drive train. This includes the universal joints at each end of a PTO shaft and end covers. The chains should always be connected to prevent the PTO shaft cover from rotating freely.

### PTO shaft drive

To ensure long life of the transmission shaft, try to avoid working angles greater than 15°.

### Setting the working depth of the brush kit

It is most important to set the brush to suit the surface conditions. Too close an adjustment will result in unnecessary wear on the bristles; it will also flatten grasses on the turf. Adjust the height of the brushes by rotating the turn buckle assembly, until tips of bristles are in light contact with the surface.

Adjustment should then be made to the front fixed brush section so that it is only in very light contact with the ground.

## Operation

Conditions and the amount of material to be collected will determine the choice of forward speed. In general, number 1 High or number 3 Low ratio gear is suitable for most conditions.

**IMPORTANT** If sweeping undulating ground, raise the baffle plate at the front of the brush until to clear obstructions, otherwise both turf and machine may be damaged.

Having started the tractor engine, engage engine PTO, open the throttle until the tachometer indicates a speed of 540rpm at the PTO and then release the clutch and lower the Litamisa gently to the ground. It is important that the rpm of the tractor engine, which governs the rotation speed of the brushes is regulated so that the material being collected is thrown to the rear of the collector. This will enable a full capacity load to be collected.

Heavy, wet materials require a slower forward speed with 540 PTO revs being maintained. For dry materials a faster forward speed may be used e.g. from 3mph (wet materials) to 6mph (dry materials)

## To empty the collector

Disengage the PTO power drive and lift the machine to the top of the hydraulic lift. Turn the hydraulic valve to auxiliary hydraulics and operate the auxiliary hydraulics to tip the collector.

## Maintenance

### Daily

walk round check to ensure no bolts are looser missing and that no brushes, components are broken or distorted. Rectify as necessary

### Weekly

oil or grease all pivot points and bearings grease the PTO shaft sliding members and universal joints - don't forget the tractor and gearbox splines

oil the screw ends of the top link check the gearbox oil level and top up if necessary with SAE90 oil

check that the retaining latches for the discharge gate panel are correctly set. It is important that these function correctly without component stress, giving the necessary security for the discharge panel during operation and transport.

when the hopper is raised to its maximum height the striker is actuated and by pushing its connecting rod downwards, raises the latch hook point clear of the pin allowing the panel to open and discharge the collected material.

Standing well clear of the Litamisa, observe the movement of the strikers and the latches during the lifting and lowering operation. It will be clearly seen whether the latches are functioning correctly. check that the screw in the rod collar is secure. If it is necessary to adjust the position of the rod collar make sure that the retaining screw is well tightened.

## Tyre Pressure

Periodically check tyre pressure and maintain at 35lbs/psi (24 km/cm2)

## Safety hints

### Always

read the operating instructions carefully and understand the controls before commencing work

fit safety guards and make sure they are correctly in position. they are supplied for your protection.

visually check machines, before starting work, for damage or wear to working parts such as blades or tines.

be extra careful when using petrol or diesel fuel. Danger no smoking or naked lights.

watch out for children or pedestrians. always look behind before starting to reverse.

respect powered machines. always keep hands and feet clear of moving parts and remember that tine cylinders or drums can continue to rotate even after the power unit is switched off.

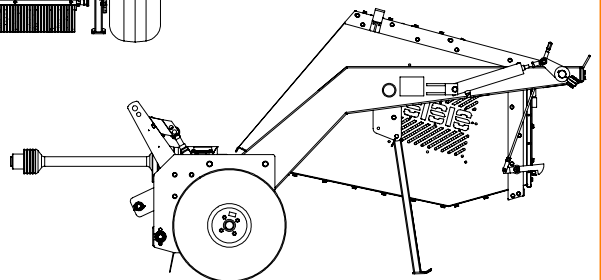
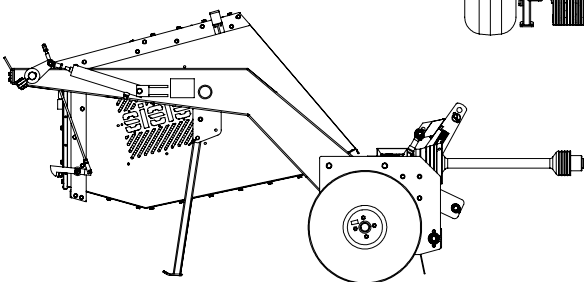
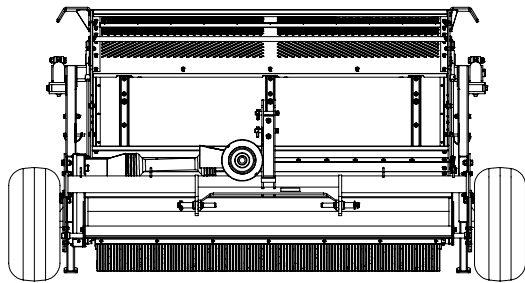
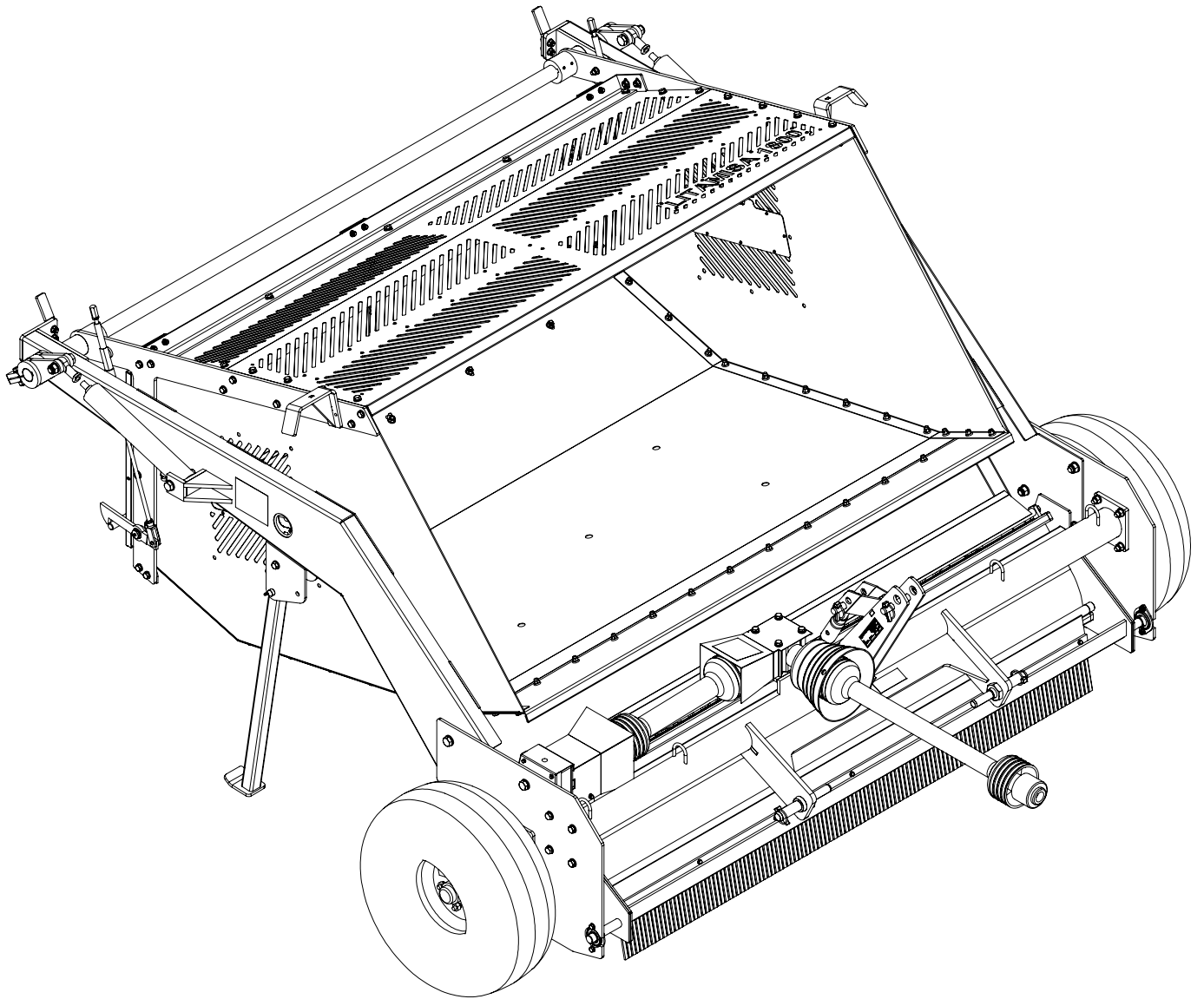
switch off the power before making adjustments or repairs.

### Never

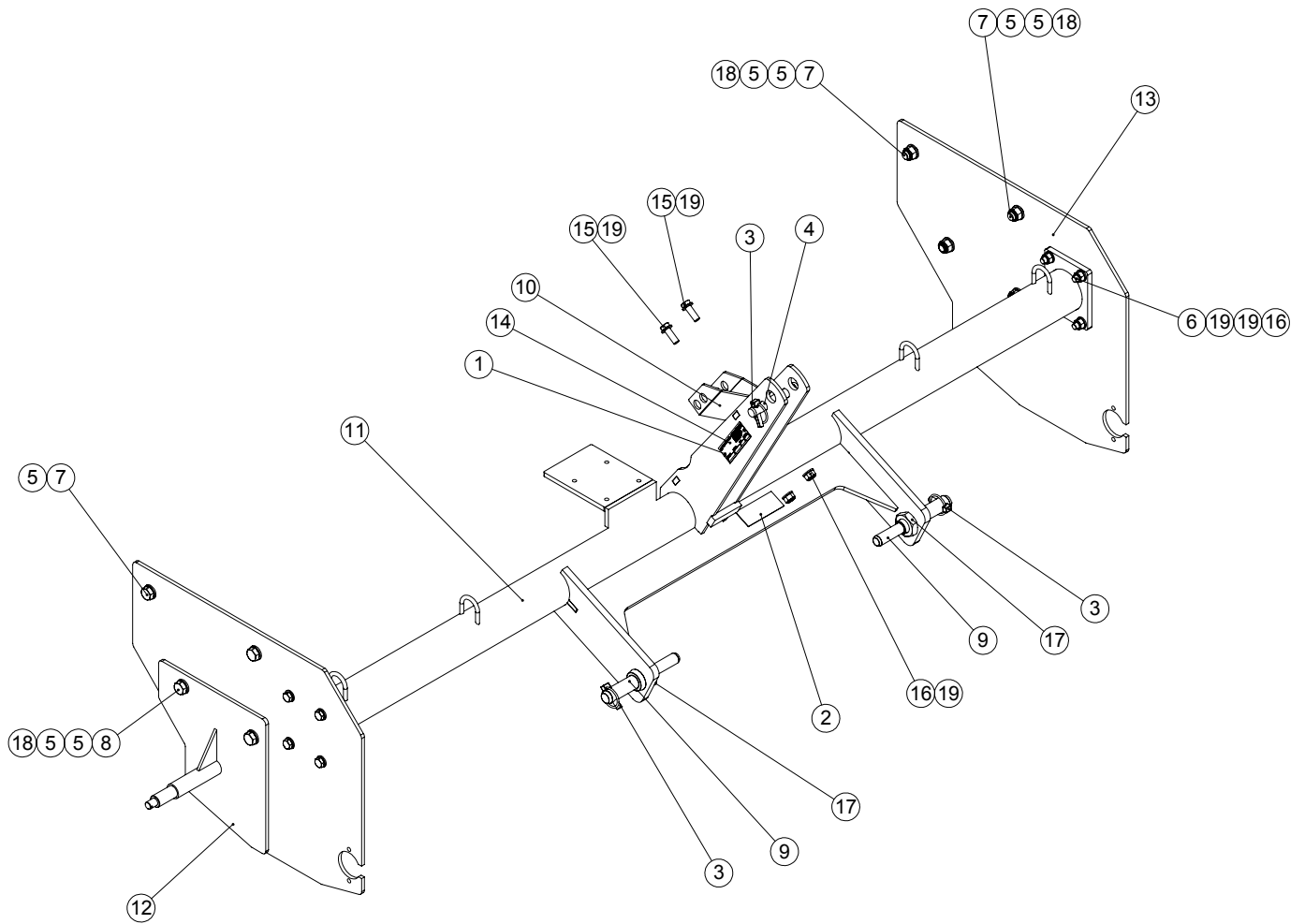
allow any unauthorised person to handle machines in any way at any time.

## Attaching PTO Drives to Tractors

- Before attaching or adjusting PTO driven implements always stop the engine and disengage the PTO drive.
- Never operate PTO shafts at extreme angles and take particular care to avoid high linkage lift positions with the PTO in operation. (ie at the end of working runs)
- Many tractors now have multi speed PTO systems. Take special care that the PTO speed selected is suitable for the implement being used eg never use 1000rpm on an implement designed for 540rpm.
- Never operate PTO shafts at extreme angles and take particular care to avoid high linkage lift positions with the PTO in operation (i.e. at the end of working runs) before attaching or adjusting PTO driven implements, always stop the engine and disengage the PTO drive.



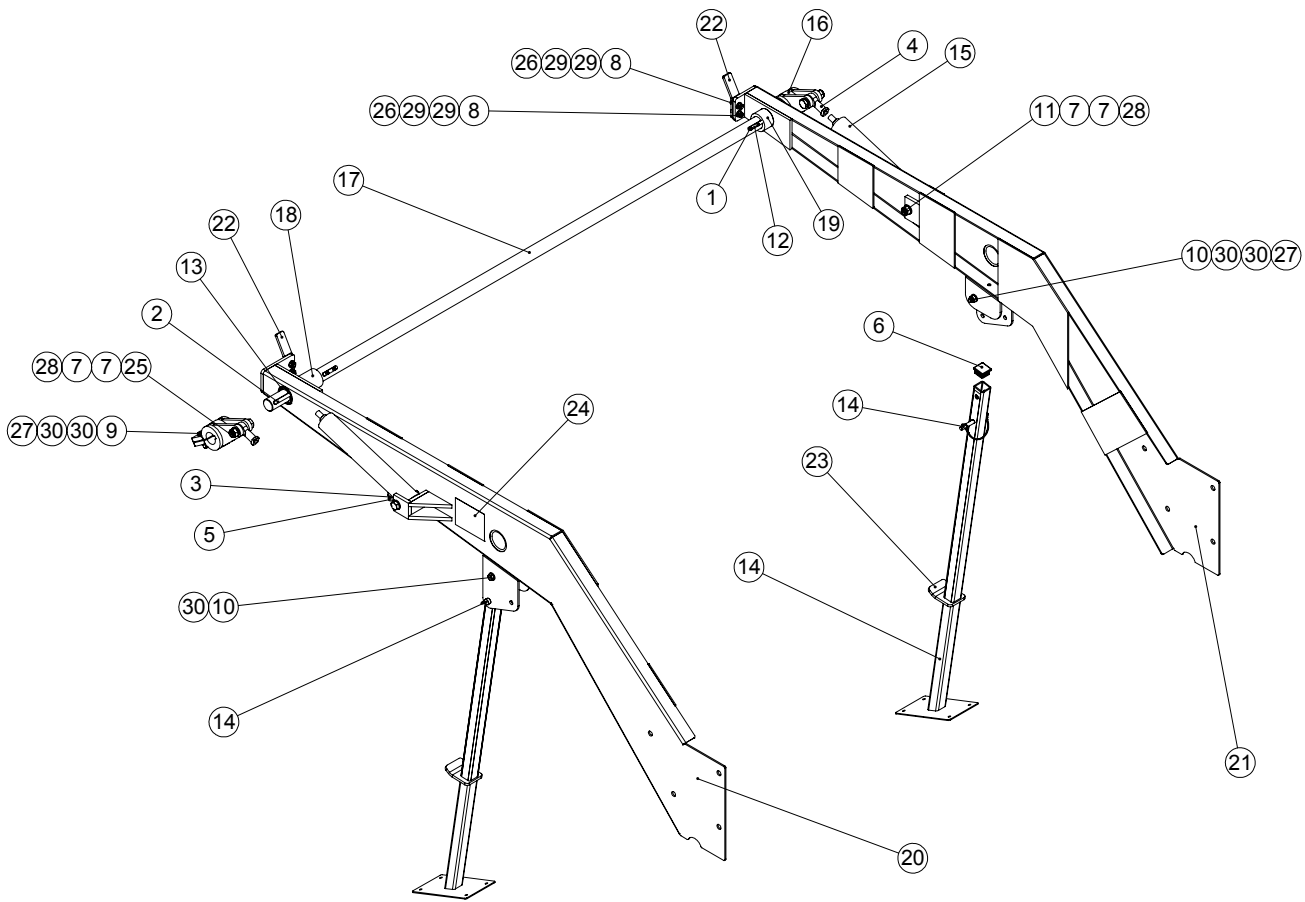
# FRAME



ITEM NO.	PART NUMBER	DESCRIPTION	CHASSIS/QTY.
1	D1871_REV1	RIVET 3.2 X 6	2
2	D4121_REV1	TRANSFER WARNING	1
3	D8326_REV1	PIN LINCH 7/16"	3
4	D8617_REV1	TOP LINK PIN 3/4"	1
5	E1-1080_REV0	WASHER M16 FORM A	16
6	E1-1157_REV0	HEX BOLT M12 X 45	8
7	E1-1175_REV0	HEX SET SCREW M16 X 40	4
8	E1-1576_REV0	HEX SET SCREW M16 X 45	4
9	F21034_REV1	LOWER LINK DUAL PIN	2
10	F30332_REV4	LINK BRACKET	1
11	F30339_REV2	HITCH FRAME	1
12	F33278_REV0	SIDEPLATE R.H.	1
13	F33279_REV0	SIDEPLATE L.H.	1
14	F36000_REV2	SERIAL NO PLATE (SISIS)	1
15	SP01111_REV0	HEX SET SCREW M12 X 35	2
16	SP02010_REV0	NUT M12 NYLOC (T)	10
17	SP02027_REV0	NUT M30 LOCK (THIN)	2
18	SP02028_REV0	NUT M16 NYLOC (T)	8
19	SP03012_REV0	WASHER M12 FORM A	20

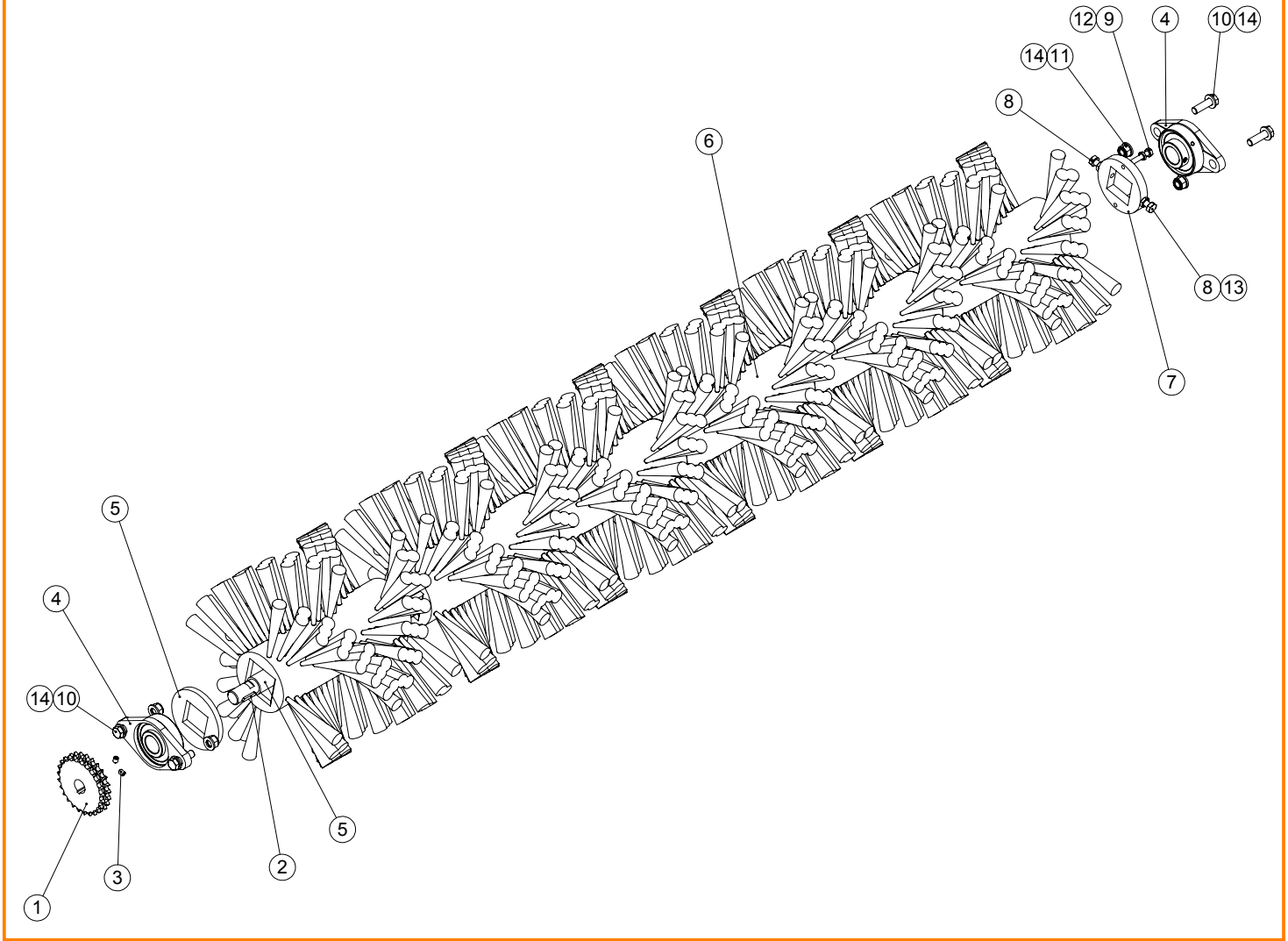


# ARMS & STAND



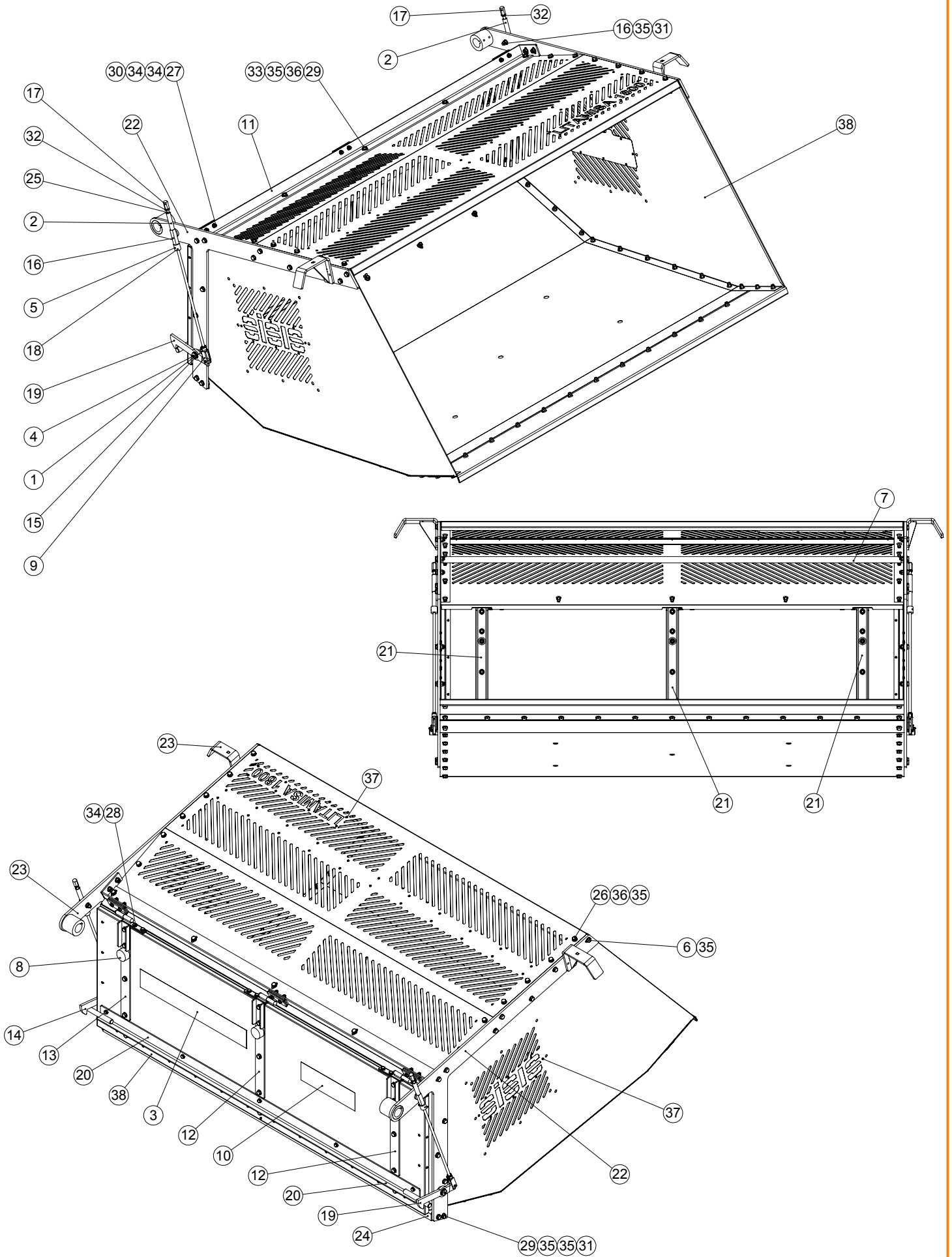
ITEM NO.	PART NUMBER	DESCRIPTION	ARMS and RAM/QTY.
1	D8153_REV1	GRUB SCREW M8 X 10	4
2	D8215_REV1	KEY PARALLEL 10 X 10 X 70	2
3	D8227_REV1	DOWTY SEAL 3/8" BSP (21/32" BORE)	2
4	D8475_REV1	ROD END MF 16K	2
5	D8917_REV1	FLOW CONTROL ADAPTOR	2
6	D8955_REV1	INSERT 40MM SQUARED	2
7	E1-1080_REV0	WASHER M16 FORM A	8
8	E1-1119_REV0	HEX SET SCREW M10 X 35	4
9	E1-1157_REV0	HEX BOLT M12 X 45	4
10	E1-1167_REV0	HEX BOLT M12 X 80	2
11	E1-1181_REV0	M16 X 130 HEX BOLT	2
12	F20059_REV1	KEY PARALLEL 10 X 10 X 60	2
13	F20062_REV0	BUSH AM4050 - 60	2
14	F20274_REV1	PIN LINCH DIA 10.8	2
15	F30325_REV7	HYDRAULIC CYLINDER	2
16	F30338_REV4	FORK BRACKET	2
17	F30437_REV7	SHAFT	1
18	F30438_REV3	SPACER	1
19	F30439_REV3	SPACER	1
20	F33243_REV7	COLLECTOR ARM RH	1
21	F33244_REV7	COLLECTOR ARM LH	1
22	F33266_REV3	BRACKET	2
23	F33267_REV3	DROP LEG	2
24	F33356_REV1	TRANSFER	2
25	SP01116_REV0	HEX BOLT M16 X 75	2
26	SP02008_REV0	NUT M10 NYLOC (T)	4
27	SP02010_REV0	NUT M12 NYLOC (T)	6
28	SP02028_REV0	NUT M16 NYLOC (T)	4
29	SP03011_REV0	WASHER M10 FORM A	8
30	SP03012_REV0	WASHER M12 FORM A	12
14	SP21006_REV2	LITAMISA PACKAGING LEG	2

# BRUSH



ITEM NO.	PART NUMBER	DESCRIPTION	BRUSH/QTY.
1	D6088	SPROCKET 08B2 25T	1
2	D8128_REV1	KEY PARALLEL 6 X 6 X 30	1
3	D8153_REV1	GRUB SCREW M8 X 10	2
4	F20509_REV1	BEARING UCFL207-20 1 1/4"	2
5	F30336_REV2	BRUSH SHAFT	1
6	F37707_REV2	ROTARY BRUSH (1800)	6
7	F37755_REV2	BRUSH LOCKING COLLAR	1
8	SP01020_REV0	HEX SET SCREW M10 X 40	2
9	SP01027_REV0	HEX SET SCREW M8 X 40	2
10	SP01078_REV0	HEX SET SCREW M12 X 40	4
11	SP02010_REV0	NUT M12 NYLOC (T)	4
12	SP02012_REV0	NUT M8 LOCK (THIN)	2
13	SP02013_REV0	NUT M10 LOCK (THIN)	2
14	SP03012_REV0	WASHER M12 FORM A	8

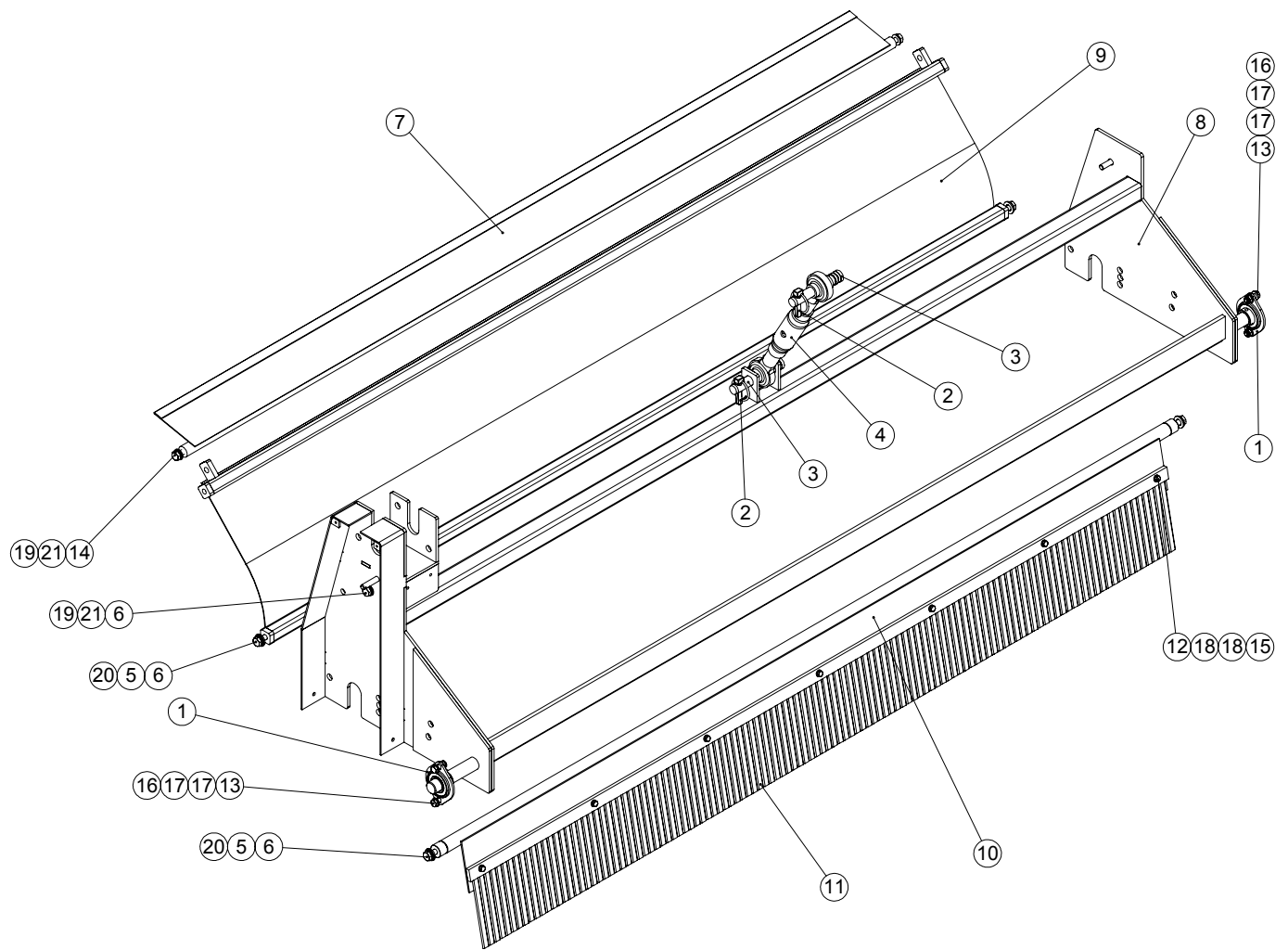
# HOPPER



# HOPPER

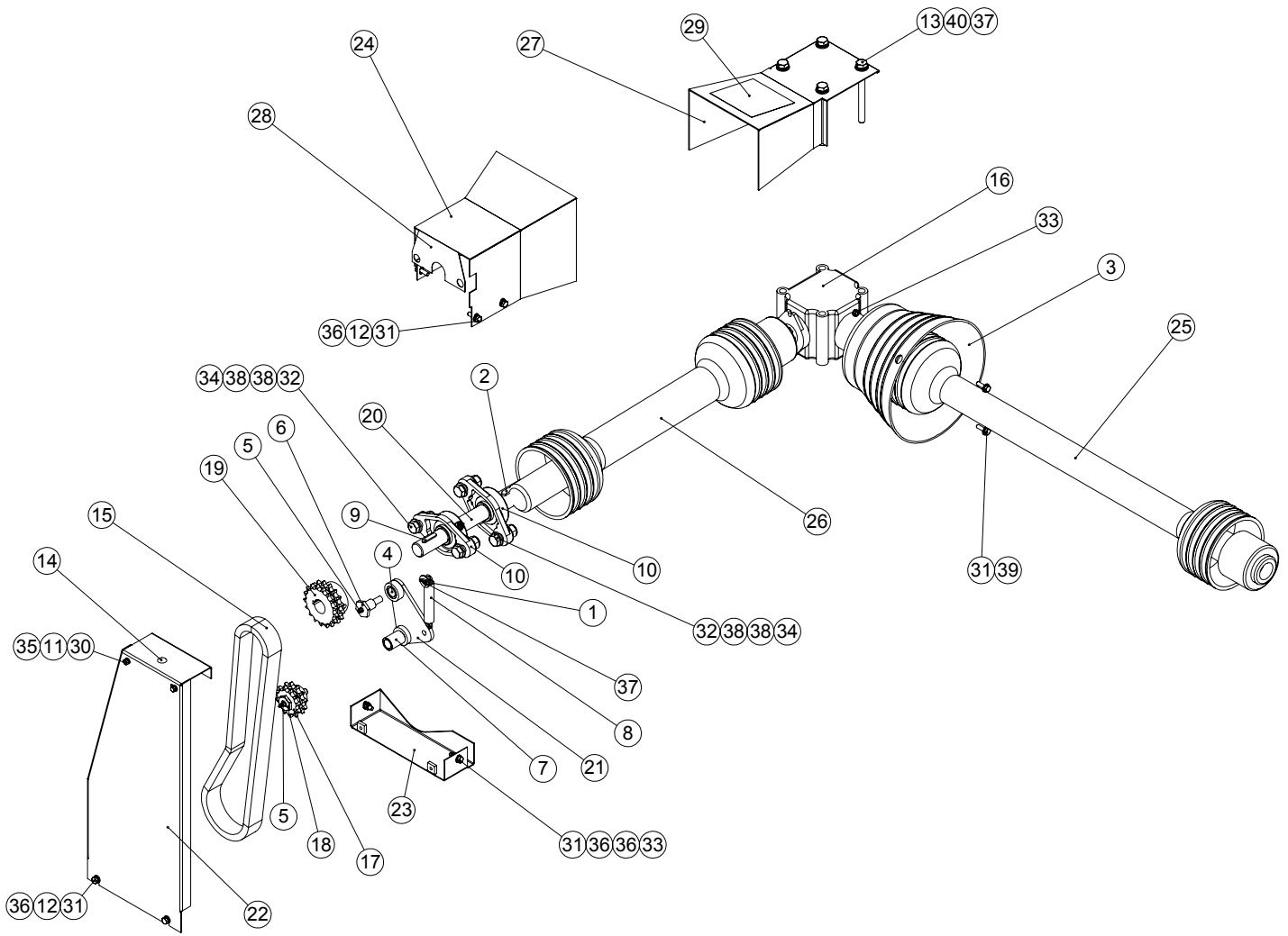
ITEM NO.	PART NUMBER	DESCRIPTION	Hopper/QTY.
1	229833_REV1	BUSH AL1622 - 20	2
2	D1376_REV0	SPRING 1/2" BORE X 14 SWG X 3"	2
3	D1597_REV1	TRANSFER LITAMISA	1
4	D1947_REV1	GREASE NIPPLE M6	2
5	D8068_REV0	GRUB SCREW M6 X 6	2
6	E1-1119_REV0	HEX SET SCREW M10 X 35	4
7	E1-3595_REV1	COLLECTOR STAY BAR	2
8	F20080_REV0	RUBBER STOP	3
9	F22433_REV0	CLEVIS ASSY M10 LONG	2
10	F30433_REV1	TRANSFER HI-LIFT	1
11	F30443_REV2	COLLECTOR REAR CROSS BEAM	1
12	F30448_REV2	HINGE RIGHT HAND	2
13	F30449_REV2	HINGE LEFT HAND	1
14	F30451_REV9	LATCH LH	1
15	F30453_REV2	PIVOT BOLT	2
16	F30454_REV1	PIVOT TUBE ASSY	2
17	F30456_REV2	STRIKER	2
18	F30457_REV3	COLLAR	2
19	F30483_REV9	LATCH RH	1
20	F30602_REV1	CATCH PLATE	1
21	F30603_REV1	BACKING STRIP	3
22	F33280_REV1	COLLECTOR LIFTING FRAME R.H.	1
23	F33281_REV2	COLLECTOR LIFTING FRAME L.H.	1
24	F33377_REV1	FRAME CROSSBEAM	1
25	F33418_REV2	ROD	2
26	SP01035_REV0	HEX SET SCREW M10 X 25	48
27	SP01036_REV0	HEX SET SCREW M8 X 35	6
28	SP01045_REV0	HEX SET SCREW M8 X 25	11
29	SP01105_REV0	HEX SET SCREW M10 X 30	46
30	SP02006_REV0	NUT M8 NYLOC (T)	17
31	SP02008_REV0	NUT M10 NYLOC (T)	49
32	SP02013_REV0	NUT M10 LOCK (THIN)	4
33	SP02046_REV0	RIVNUT HEX M10 (1.0-3.5) [NO HEAD]	3
34	SP03008_REV0	WASHER M8 FORM A	34
35	SP03011_REV0	WASHER M10 FORM A	147
36	SP03034_REV0	WASHER M10 SPRING LOCK	52
37	SP05001_REV0	RIVET 4.8 X 10	88
38	litamisa 1800 HOPPER	LITAMISA 1800 HOPPER ASSY	1

# BRUSH FRAME



ITEM NO.	PART NUMBER	DESCRIPTION	BRUSH FRAME/QTY.
1	D8032_REV0	BEARING BPFL5-25	2
2	D8326_REV1	PIN LINCH 7/16"	2
3	D8617_REV1	TOP LINK PIN 3/4"	2
4	D8665_REV1	TOP LINK	1
5	E1-1065_REV0	SPRING WASHER M12 SQUARE SECTION	4
6	E1-1119_REV0	HEX SET SCREW M10 X 35	6
7	F30327_REV6	DEFLECTOR EXTENSION	1
8	F30330_REV17	BRUSH FRAME	1
9	F30337_REV5	DEFLECTOR	1
10	F30434_REV7	FRONT PLATE	1
11	F31023_REV3	BRUSH SECTION	1
12	SP01028_REV0	HEX SET SCREW M6 X 20	7
13	SP01045_REV0	HEX SET SCREW M8 X 25	4
14	SP01105_REV0	HEX SET SCREW M10 X 30	2
15	SP02004_REV0	NUT M6 NYLOC	7
16	SP02006_REV0	NUT M8 NYLOC (T)	4
17	SP03008_REV0	WASHER M8 FORM A	8
18	SP03010_REV0	WASHER M6 FORM A	14
19	SP03011_REV0	WASHER M10 FORM A	4
20	SP03012_REV0	WASHER M12 FORM A	4
21	SP03034_REV0	WASHER M10 SPRING LOCK	4

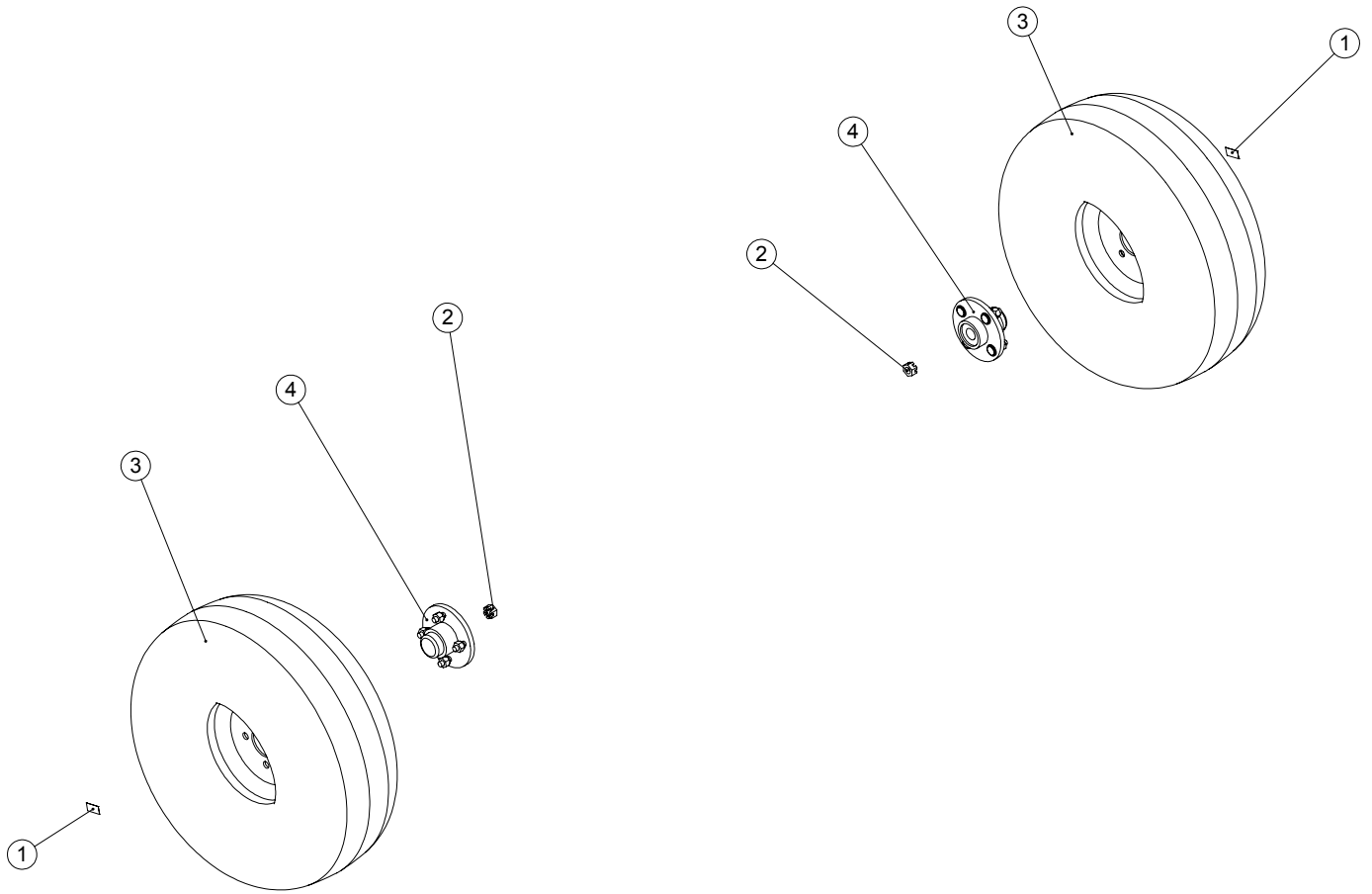
# DRIVE



# DRIVE

ITEM NO.	PART NUMBER	DESCRIPTION	DRIVE/QTY.
1	D1040_REV0	SPLIT PIN 3/32" X 3/4"	1
2	D1565_REV1	KEY PARALLEL 5/16inches X 5/16inches X 2inches	1
3	D1734_REV0	IMPLEMENT SHIELD	1
4	D1809_REV1	BUSH AI1014 - 5/8"	1
5	D1947_REV1	GREASE NIPPLE M6	2
6	D3047_REV1	AUTOROTORAKE TENSION ARM	1
7	D8054_REV1	BUSH AM1622 - 30	1
8	D8058_REV1	SPRING 5/8" X 4"	1
9	D8128_REV1	KEY PARALLEL 6 X 6 X 30	1
10	D8298_REV1	BEARING UCFT205-25	2
11	E1-1060_REV0	M5 SPRING WASHER	2
12	E1-1061_REV0	WASHER M6 SPRING	6
13	E1-1728_REV0	HEX BOLT M10 X 110	4
14	F20055_REV1	PLUG BLANKING	1
15	F20109_REV1	CHAIN 79P x 1/2" inches inches PITCH DUPLEX	1
16	F20540_REV1	GEAR BOX	1
17	F30326	SPROCKET 08B2 12T	1
18	F30328_REV7	TENSION SCREW	1
19	F30329	SPROCKET 08B2 17T	1
20	F30331_REV6	DRIVE SHAFT	1
21	F30333_REV6	TENSION ARM	1
22	F30444_REV13	CHAIN DRIVE COVER	1
23	F30445_REV12	LOWER FLANGE COVER	1
24	F30446_REV6	DRIVE SHAFT COVER	1
25	F30510_REV1	PTO SHAFT	1
26	F30511_REV1	PTO SHAFT	1
27	F31341_REV8	PTO GUARD	1
28	F33416_REV2	SEALING PLATE	1
29	F34052_REV1	TRANSFER	1
30	SP01004_REV0	HEX SET SCREW M5 X 20	2
31	SP01028_REV0	HEX SET SCREW M6 X 20	10
32	SP01078_REV0	HEX SET SCREW M12 X 40	4
33	SP02004_REV0	NUT M6 NYLOC	4
34	SP02010_REV0	NUT M12 NYLOC (T)	4
35	SP03009_REV0	WASHER M5 FORM A	2
36	SP03010_REV0	WASHER M6 FORM A	10
37	SP03011_REV0	WASHER M10 FORM A	5
38	SP03012_REV0	WASHER M12 FORM A	8
39	SP03014_REV0	WASHER M6 FORM C	2
40	SP03034_REV0	WASHER M10 SPRING LOCK	4

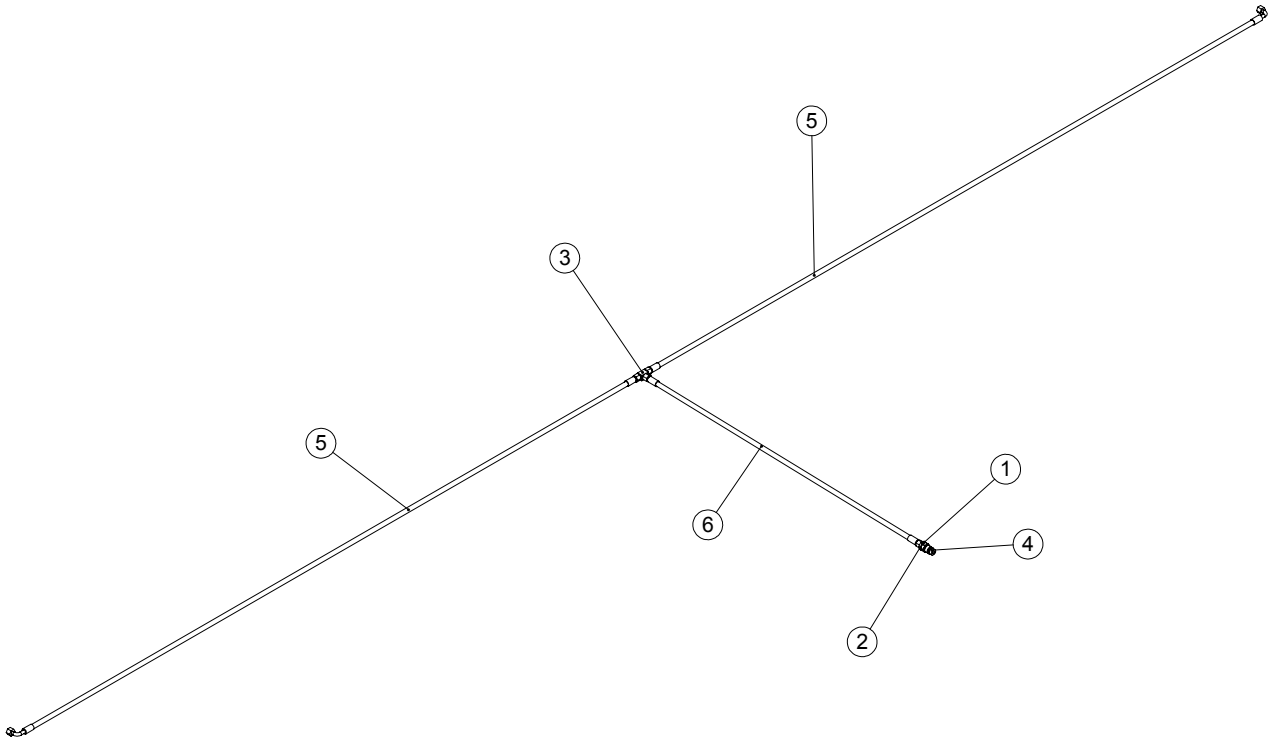
# WHEELS



ITEM NO.	PART NUMBER	DESCRIPTION	WHEELS/QTY.
1	D7424_REV1	TRANSFER 35LBS PSI	2
2	D8379_REV1	NUT 5/8" UNF CASTLE	2
3	D8496_REV1	WHEEL & TYRE ASSEMBLY	2
4	F21253_REV1	WHEEL HUB C/W STUDS	2



# PIPES



ITEM NO.	PART NUMBER	DESCRIPTION	PIPES/QTY.
1	D8385_REV1	DOWTY SEAL 1/2 INCHES	1
2	D8878_REV1	1/2" M TO 3/8" M BSP ADAPTOR	1
3	F20793_REV1	3/8" BSP MALE BRANCH TEE	1
4	F22390_REV1	Q/R MALE COUPLING	1
5	F33305_REV1	HOSE	2
6	F33306_REV1	HOSE 3/8" FEMALE STRAIGHT BOTH ENDS 1300 LG	1





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