



Twose Series

SPRING TINE HARROWS

Models: 1.5M, 2.0M, 3.0M, 4.5M, 5.0M & 6.0M

Operator & Parts Manual

Publication 8178

May 2016

IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with McConnel Limited before delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register machines go to the McConnel Limited web site at www.mccommel.com, log onto 'Dealer Inside' and select the 'Machine Registration button' which can be found in the Service Section of the site. Confirm to the customer that the machine has been registered in the section below.

Should you experience any problems registering a machine in this manner please contact the McConnel Service Department on 01584 875848.

Registration Verification

Dealer Name:
Dealer Address:
Customer Name:
Date of Warranty Registration:/...../..... Dealer Signature:

NOTE TO CUSTOMER / OWNER

Please ensure that the above section above has been completed and signed by the selling dealer to verify that your machine has been registered with McConnel Limited.

IMPORTANT: During the initial 'bedding in' period of a new machine it is the customer's responsibility to regularly inspect all nuts, bolts and hose connections for tightness and re-tighten if required. New hydraulic connections occasionally weep small amounts of oil as the seals and joints settle in – where this occurs it can be cured by re-tightening the connection – refer to torque settings chart below. The tasks stated above should be performed on an hourly basis during the first day of work and at least daily thereafter as part of the machines general maintenance procedure.

CAUTION: DO NOT OVER TORQUE HYDRAULIC FITTINGS AND HOSES

TORQUE SETTINGS FOR HYDRAULIC FITTINGS

HYDRAULIC HOSE ENDS		
BSP	Setting	Metric
1/4"	18 Nm	19 mm
3/8"	31 Nm	22 mm
1/2"	49 Nm	27 mm
5/8"	60 Nm	30 mm
3/4"	80 Nm	32 mm
1"	125 Nm	41 mm
1.1/4"	190 Nm	50 mm
1.1/2"	250 Nm	55 mm
2"	420 Nm	70 mm

PORT ADAPTORS WITH BONDED SEALS		
BSP	Setting	Metric
1/4"	34 Nm	19 mm
3/8"	47 Nm	22 mm
1/2"	102 Nm	27 mm
5/8"	122 Nm	30 mm
3/4"	149 Nm	32 mm
1"	203 Nm	41 mm
1.1/4"	305 Nm	50 mm
1.1/2"	305 Nm	55 mm
2"	400 Nm	70 mm

WARRANTY POLICY

WARRANTY REGISTRATION

All machines must be registered, by the selling dealer with McConnel Ltd, before delivery to the end user. On receipt of the goods it is the buyer's responsibility to check that the Verification of Warranty Registration in the Operator's Manual has been completed by the selling dealer.

1. LIMITED WARRANTIES

- 1.01. *All machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.*
- 1.02. *All spare parts supplied by McConnel Ltd and purchased by the end user are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months. All parts warranty claims must be supported by a copy of the failed part invoice to the end user. We cannot consider claims for which sales invoices are not available.*
- 1.03. *The warranty offered by McConnel Ltd is limited to the making good by repair or replacement for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined. Pack the component(s) carefully so that any transit damage is avoided. All ports on hydraulic items should be drained of oil and securely plugged to prevent seepage and foreign body ingress. Certain other components, electrical items for example, may require particular care when packing to avoid damage in transit.*
- 1.04. *This warranty does not extend to any product from which McConnel Ltd's serial number plate has been removed or altered.*
- 1.05. *This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, belts, clutch linings, filter elements, flails, flap kits, skids, soil engaging parts, shields, guards, wear pads, pneumatic tyres or tracks.*
- 1.06. *Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.*
- 1.07. *Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.*
- 1.08. *Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which McConnel Ltd cannot be held liable, and may have safety implications.*
- 1.09. *If in exceptional circumstances a non McConnel Ltd part is used to effect a repair, warranty reimbursement will be at no more than McConnel Ltd's standard dealer cost for the genuine part.*
- 1.10. *Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of McConnel Ltd.*
- 1.11. *For machine warranty periods in excess of 12 months the following additional exclusions shall apply:*
 - 1.11.1. *Hoses, exposed pipes and hydraulic tank breathers.*
 - 1.11.2. *Filters.*
 - 1.11.3. *Rubber mountings.*
 - 1.11.4. *External electric wiring.*
 - 1.11.5. *Bearings and seals.*

- 1.12. *All service work, particularly filter changes, must be carried out in accordance with the manufacturer's service schedule. Failure to comply will invalidate the warranty. In the event of a claim, proof of the service work being carried out may be required.*
- 1.13. *Repeat or additional repairs resulting from incorrect diagnosis or poor quality previous repair work are excluded from warranty.*

NB Warranty cover will be invalid if any non-genuine parts have been fitted or used. Use of non-genuine parts may seriously affect the machine's performance and safety. McConnell Ltd cannot be held responsible for any failures or safety implications that arise due to the use of non-genuine parts.

2. REMEDIES AND PROCEDURES

- 2.01. *The warranty is not effective unless the Selling Dealer registers the machine, via the McConnell Ltd web site and confirms the registration to the purchaser by completing the confirmation form in the operator's manual.*
- 2.02. *Any fault must be reported to an authorised McConnell Ltd dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which McConnell Ltd cannot be held liable.*
- 2.03. *Repairs should be undertaken within two days of the failure. Claims submitted for repairs undertaken more than 2 weeks after a failure has occurred, or 2 days after the parts were supplied will be rejected, unless the delay has been authorised by McConnell Ltd. Please note that failure by the customer to release the machine for repair will not be accepted as a reason for delay in repair or submitting warranty claims.*
- 2.04. *All claims must be submitted, by an authorised McConnell Ltd Service Dealer, within 30 days of the date of repair.*
- 2.05. *Following examination of the claim and parts, McConnell Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by McConnell Ltd and appropriate labour and mileage allowances if applicable.*
- 2.06. *The submission of a claim is not a guarantee of payment.*
- 2.07. *Any decision reached by McConnell Ltd is final.*

3. LIMITATION OF LIABILITY

- 3.01. *McConnell Ltd disclaims any express (except as set forth herein) and implied warranties with respect to the goods including, but not limited to, merchantability and fitness for a particular purpose.*
- 3.02. *McConnell Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.*
- 3.03. *Except as provided herein, McConnell Ltd shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the goods including, but not limited to, any indirect, special, consequential, or incidental damages resulting from the use or operation of the goods or any breach of this warranty. Notwithstanding the above limitations and warranties, the manufacturer's liability hereunder for damages incurred by the purchaser or others shall not exceed the price of the goods.*
- 3.04. *No action arising out of any claimed breach of this warranty or transactions under this warranty may be brought more than one (1) year after the cause of the action has occurred.*

4. MISCELLANEOUS

- 4.01. *McConnell Ltd may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.*
- 4.02. *If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.*
- 4.03. *Applicable law may provide rights and benefits to the purchaser in addition to those provided herein.*



DECLARATION OF CONFORMITY

Conforming to EU Machinery Directive 2006/42/EC

We,

McCONNEL LIMITED, Temeside Works, Ludlow, Shropshire SY8 1JL, UK

Hereby declare that:

The Product; *Tractor Trailed Spring Tine Harrow*

Product Code; *TSHR*

Serial No. & Date Type

Manufactured in; *United Kingdom*

Complies with the required provisions of the Machinery Directive 2006/42/EC
The machinery directive is supported by the following harmonized standards;

- BS EN ISO 12100 (2010) Safety of machinery – General principles for design – Risk assessment and risk reduction.
- BS EN 349 (1993) + A1 (2008) Safety of machinery - Minimum distances to avoid the entrapment with human body parts.
- BS EN 953 (1997) + A1 (2009) Safety of machinery - Guards general requirements for the design and construction of fixed and movable guards.
- BS EN 4413 (2010) Hydraulic fluid power. Safety requirements for systems and their components.

McCONNEL LIMITED operates an ISO 9001:2008 quality management system, certificate number: FM25970.

This system is continually assessed by the;

British Standards Institution (BSI), Beech House, Milton Keynes, MK14 6ES, UK
BSI is accredited by UK Accreditation Service, accreditation number: UKAS 003.

The EC declaration only applies if the machine stated above is used in accordance with the operating instructions.

Signed *Responsible Person*
CHRISTIAN DAVIES on behalf of McCONNEL LIMITED

Status: *General Manager*

Date: *May 2016*

GENERAL INFORMATION

Always read this manual before fitting or operating the machine – whenever any doubt exists contact your dealer or the McConnel Service Department for advice and assistance.

Use only McConnel Genuine Service Parts on McConnel Equipment and Machines

DEFINITIONS – The following definitions apply throughout this manual:

WARNING

An operating procedure, technique etc., which –
can result in personal injury or loss of life if not observed carefully.

CAUTION

An operating procedure, technique etc., which –
can result in damage to either machine or equipment if not observed carefully.

NOTE

An operating procedure, technique etc., which –
is considered essential to emphasis.

LEFT AND RIGHT HAND

This term is applicable to the machine when attached to the tractor and is viewed
from the rear – this also applies to tractor references.

MACHINE & DEALER INFORMATION

Record the Serial Number of your machine on this page and always quote this number when ordering parts. Whenever information concerning the machine is requested remember also to state the make and model of tractor to which the machine is fitted.

Machine Serial Number:

Installation Date:

Machine Model details:

Dealer Name:

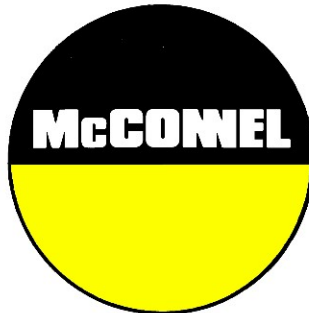
Dealer Address:

Dealer Telephone No:

Dealer Email Address:

THIS MANUAL IS TO BE HANDED TO THE CUSTOMER BEFORE THE MACHINE IS TO BE USED FOR THE FIRST TIME.

THIS MANUAL (OR A COPY OF) MUST BE USED AND READ BY OPERATOR.



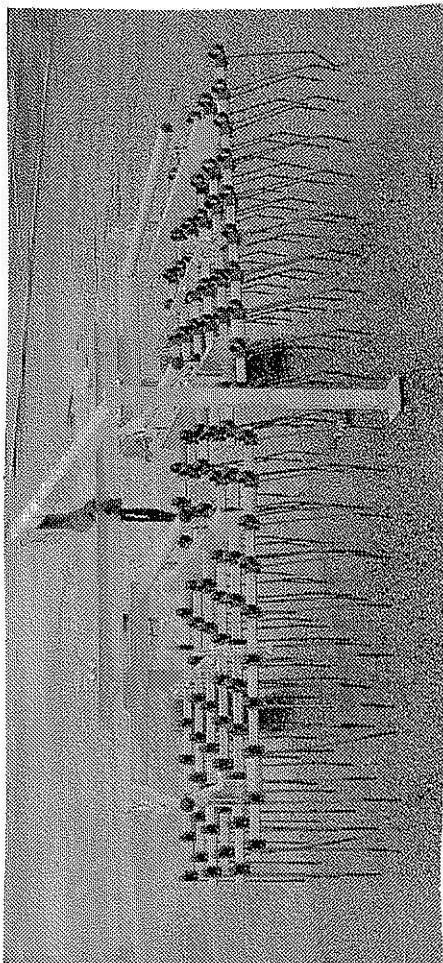
McCONNEL LIMITED
TEMESIDE WORKS
LUDLOW
SHROPSHIRE
SY8 1ND

TEL: 01584 873131
FAX: 01584 876463

All dimensions and capacities mentioned in this book are approximate. In pursuance of the Companies policy of constant development, the right is reserved to depart, without notice, from any detail illustrated or specified in this book, without incurring the obligation to provide such modifications on machines previously delivered.

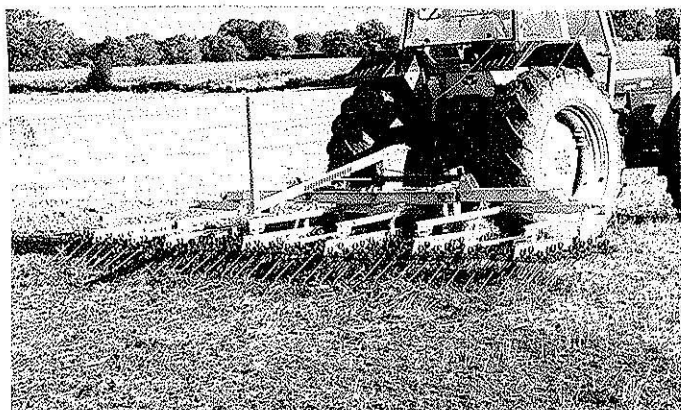
No responsibility will be accepted by McConnel Limited for any injury, damage or loss arising from the improper use or lack of maintenance of any machinery supplied by them or from any failure of the user to comply with all instructions published by Tractor or Loader manufacturers, particularly with regard to maximum load capacities, tyre pressures and stability, or with instructions and regulations pertaining to Tractor Cabs.

SPRING TINE HARROWS



To rejuvenate pasture.
Scatter manure,
Clear out moss, thatch and weeds,
Aerates field crops and fine tills.

Various width model options:- 3.0m, 4.5m,
5.0m and 6.0m.
Manual-Spring assist or Hydraulic Folding.
Three point linkage mounting.
Depth wheel control.
Stand leg - stability (parking).
Single lever tine angle adjust.



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SPECIFICATIONS

1.5M Machines 1540

Overall Height (Machine folded for transport)	-
Overall Width Machine folded for transport)	-
Overall Length of Machine (From lower link pin holes)	-
Total Weight of Machine	-

2.0M Machines 2040

Overall Height (Machine folded for transport)	-
Overall Width Machine folded for transport)	-
Overall Length of Machine (From lower link pin holes)	-
Total Weight of Machine	-

3.0M Machines 3032 3040

Overall Height (Machine folded for transport)	-
Overall Width Machine folded for transport)	-
Overall Length of Machine (From lower link pin holes)	-
Total Weight of Machine	-

4.5M Machines 4532 4532H 4540 4540H

Overall Height (Machine folded for transport)	-
Overall Width Machine folded for transport)	-
Overall Length of Machine (From lower link pin holes)	-
Total Weight of Machine	-

5.0M Machines 5032 5032H 5040 5040H

Overall Height (Machine folded for transport)	-	2.0M
Overall Width Machine folded for transport)	-	2.9M
Overall Length of Machine (From lower link pin holes)	-	1.6M
Total Weight of Machine	-	

6.0M Machines 6032 6032H 6040 6040H

Overall Height (Machine folded for transport)	-
Overall Width Machine folded for transport)	-
Overall Length of Machine (From lower link pin holes)	-
Total Weight of Machine	-

GENERAL INFORMATION

NOTE:- The provision of this information is a requirement of the Health & Safety at Work Act 1974.

NOTE:- This handbook has been designed to help the operator and service/mechanic to use and understand the machine fully, safely and efficiently, bearing in mind the Health & Safety requirements and the new CE requirements which come into force from January 1st 1995.

NOTE:- The handbook/manual will be supplied in a waterproof plastic outer cover to prevent damage from rain, condensation etc. The cover of the handbook will include its own part number, which includes information as to machine type and issue date of manual in question.

DANGER

NOTE:- It is very important that the handbook/manual has been read thoroughly - throughout, and is completely understood before attempting to attach or use machine in any way.

CAUTION: When ordering spares, please state clearly:-

- (a) Machine type and model No.
- (b) Part No. of component.
- (c) Description of component.
- (d) Quantity required.
- (e) Full address to which spares are to be sent.
- (f) Method of delivery required.

CAUTION:- Always insist on genuine and correct spare parts.

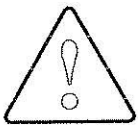
NOTE:- Further copies of this handbook/manual can be obtained from:-

McCONNEL LIMITED
TEMESIDE WORKS
LUDLOW
SHROPSHIRE
SY8 1ND

TEL: 01584 873131
FAX: 01584 876463

SAFETY NOTES AND WARNINGS

Throughout the handbook the following sub headings are used to draw attention to various points of importance.



DANGER
WARNING

This is to draw attention to very important instructions which MUST be followed precisely to avoid injury or death.

CAUTION

This is used to draw attention to instructions which MUST be followed to avoid damage to operator, machine, process or the environment.

NOTE:-

This is used to highlight points used for supplementary information.

ABOUT THIS MACHINE

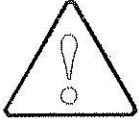
This is a 'Spring Tine Harrow' which will produce rejuvenated pasture and scatter manure. If used it will also clear moss, thatch and weeds. Aerates, weeds, field crops and fine tills.

It is intended to be attached to an agricultural vehicle by means of the "Three-Point-Linkage" couple-up system.

The purpose for its production and its sole intention is to Harrow and prepare land.

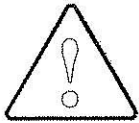
At no time must this machine be used for anything other than, or to do any job - other than that for which it has been designed (see note above).

HEALTH AND SAFETY



DANGER
WARNING

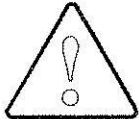
Never attempt to assemble, couple up, or operate machinery until you understand fully the functions, controls and safety precautions required, as shown in the operators manual.



DANGER
WARNING

Always follow tractor safety operations and instructions VERY carefully.

NEVER TAKE RISKS



DANGER
WARNING

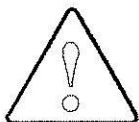
NEAVER LEAVE TRACTOR
SEAT WHILST ENGINE - OR
MACHINE IS RUNNING

CAUTION.

Be aware of warning stickers and instruction stickers on machine as care must be taken and instructions obeyed.

CAUTION

Contact your dealer should you need advice, assistance, or if you do not understand the manual or machine. "NEVER ASSUME" - if not sure - ASK.



DANGER
WARNING

Check tyre pressure WEEKLY - 28PSI (1.9bar)

HEALTH AND SAFETY
CONTINUED

CAUTION

Machine **MUST NOT** be altered or modified in any way - without permission - No liability will be accepted in respect of a machine that has been modified without manufacturers permission.



DANGER
WARNING

Never drive machinery at speeds that could cause danger to other persons or properties, or in a manner that may cause accidents.

Never attempt to Service/adjust or work on any machinery in an unsupported state.

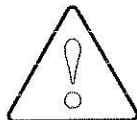


DANGER
WARNING

For Example:- Any three point linkage mounted machinery

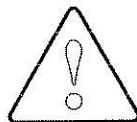
Front Loaders
Digger Booms
Hedgetrimmer

booms etc. etc.



DANGER
WARNING

Always ensure that machinery is safely supported and propped in position.



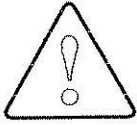
DANGER
WARNING

Always ensure that the wheels of any wheeled implement/machinery are 'choked' firmly and implement will not move, before attempting to 'service' or 'work on' in any way or form.

CAUTION

Always "**SWITCH-OFF**" tractor engine before attempting to carry out adjustment or service repairs and inspections, on machinery.

HEALTH AND SAFETY CONTINUED



DANGER
WARNING

Always be aware of your surroundings - and operate machinery accordingly. Beware of confined-tight areas, low height restrictions, buildings and overhangs etc. Also drive and operate bearing in mind weather conditions such as sun, rain, ice, snow, wind etc. [Make allowances in all situations].

CAUTION

Never operate machine in a reckless or uncaring manner. Respect other road users and be patient.

CAUTION

Never carry "passengers" on machinery or on tractor.
Ensure bystanders/onlookers are kept well away from operational area of apparatus.

CAUTION

Never walk underneath the machine for any reason especially if unit is still operating.

CAUTION

'PARKING UP' MACHINE

When machine is being removed from tractor linkage and being 'parked up' it is essential that a good firm base and level site be found.

Always chock and prop machine to ensure a good firm position to leave parked. Ensure that stand legs of machine are correctly locked into position.

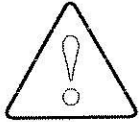
CAUTION

Never allow children to play on, or around, parked machinery.

HEALTH AND SAFETY CONTINUED

CAUTION

Never wear loose fitting or ragged clothing which could get caught in machinery or controls.



DANGER
WARNING

Always ensure safety screens are fitted into position to protect operator from flying debris.

CAUTION

Ensure visibility is clear through cab-screens at all times.

CAUTION

Ensure workstation controls, Joysticks, (Cable levers) etc. are positioned correctly to suit operator, and not getting in the way of other driving functions.

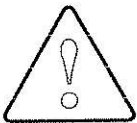
Make sure controls do not obstruct entry and exit to cab.

CAUTION

Always dispose of discarded or worn out parts thoughtfully - by disposing of them in an approved and specified legal scrap site, bin or skip.

CAUTION

Worn out and spent waste oil, grease and other obnoxious substances must always be disposed of in suitable and legally approved dumping containers suitable for the waste in question.



DANGER
WARNING

Great care must be taken when attaching Harrow to tractor linkage due to having to actually position oneself between tractor rear and Harrow in order to connect attachment pins.

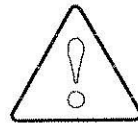
NOTES

AMENDMENT

DATE

DETAILS

GENERAL INSTRUCTIONS



DANGER
WARNING

1. Before attaching any machine to a tractor or loader make sure that implement is still standing firmly on good solid - level site as it will be, providing unit was previously parked correctly.
- Check that any wheels are 'choked' correctly and that supports/props are in position where necessary to prevent booms etc. dropping.
2. Before and during the manoeuvring of the tractor or vehicle in order to attach machinery/implements, - make sure that No other persons are in the vicinity.
Keep other persons well clear and make known your intentions, all the while keeping a sharp lookout whilst reversing and aligning machines for coupling up.
3. Always secure tractor into selected position by ensuring that brakes are applied correctly in order to prevent vehicle moving off on its own to cause injury and damage.
4. Make sure that the lift arms and top link ball ends of the tractor are properly fitted to the machine/implement by using correct adapter sleeves where necessary, and that retaining pins of the correct type are used on all three point linkage points. Secure pins with relevant pin and ring assembly.
5. If the machine is of the drawbar type - check that the hitch on the tractor is in good condition and that the hitch pin used is of the correct size and type, and is properly secured when fitted.
6. Should it become necessary to make any adjustments or service on machine while raised on the tractor linkage, or raised on a front end loader - trestles or suitable supports MUST be positioned to support machine to prevent accidental dropping of lift arms, loader arms or mechanical failure.
[MACHINE MUST ALWAYS BE PROPPED AND CHOKED]
7. Never attempt to work on, adjust or service repair machinery of any kind whilst it is still running or working. Always stop the machine and **STOP THE TRACTOR ENGINE** - before any service/repairs begin.
(SWITCH OFF TRACTOR ENGINE BEFORE LEAVING TRACTOR SEAT)

8. In transit always use transport stays or locking devices where provided.
If, as in the case of some longer machines, the unit is transported lengthways - make sure that the front of the tractor is suitably ballasted to maintain stability.
A method of achieving this would be to add suitable weights to a correctly specified and fitted front weight frame.

9. Always use machines in a sensible and reasonable manner and do not attempt to use them in work for which they are not intended. Avoid overloading and abusing them as this can cause damage to machine and tractor and can be very dangerous.

10. When unhitching/detaching a machine from a tractor three point linkage or from a front end loader ensure that any stands or legs are securely positioned and that the machine is parked where it will not be a safety hazard or cause annoyance to others.
Make sure that chose 'parking site' is a firm and level site.

11. Carry out regular periodic maintenance. - Always with safety in mind.

12. Ensure regular maintenance procedures are maintained for the lifetime of the machine.

13. **HEALTH AND SAFETY RULES AND REGULATIONS MUST BE ADHERED TO IN ALL AGRICULTURAL RESPECTS.**

INTRODUCTION

1. The Twose range of Spring Tine Harrows have been designed to give a variation of widths ranging from 3.0m to 6.0m.

The folding option is either Spring assist fold or - Full Hydraulic (with hydraulic cylinder).

The tines are spaced at 25mm.

2. The construction is of welded steel fabricated assemblies.

TRACTOR SELECTION FOR SPRING TINE HARROWS

Tractor size selection for Harrow should be 35kW (45HP) - upwards.

Tractor must have counterbalance weights fitted if necessary (on approved mountings) and/or ballasted wheels may be found an advantage to ensure unit is stable.

Tractor rear wheels could also be set at a wider track setting to cure stability problem - contact agent for advice.

ATTACHING MACHINE TO TRACTOR

IMPORTANT

Ensure machine is parked on a firm and level site without any bystanders or onlookers.

Read and understand the general instructions and Health and Safety of this manual.

1. NOTE:- FOR PIN TYPE LOWER LINKAGE EYES ONLY:-

Remove spring pins, lift pins and spacers as supplied with Harrow from lower link positions of linkage frame.

Slowly and very carefully reverse the tractor towards the machine linkage frame.

With care - ensure that tractor lower link ball eyes fit between lower jaws of linkage frame and that pin holes are aligned.

SWITCH OFF TRACTOR ENGINE AND ENSURE HANDBRAKE IS ON.

With holes of tractor lower link eyes in line with lower jaw holes of frame - the lower linkage pins should now be refitted - with spacers 'in position - on pin, between jaws and outboard'

Spacer is provided to prevent side movement of link arms.

Secure lift into position using the 7/16" dia pin and ring assembly.

Fit top link assembly in the conventional manner between tractor and Harrow, using correct pins.

Set machine to be level with ground by adjusting Top link to suit.

On hydraulic Harrow units ensure service hoses from 'folding' cylinder are connected to tractor.

START TRACTOR

Raise Harrow by operating tractor three point linkage to a height suitable to allow the 2 stand leg units to be removed, these legs must now be inverted and placed back into existing brackets and secured with pin supplied.

ATTACHING MACHINE TO TRACTOR CONTINUED

2. NOTE:- FOR AUTOMATIC QUICK CROOK-ON LOWER LINK ONLY:-

Remove spring pins, lift pins and spacers as supplied with Harrow from lower link positions of linkage frame. Then reassemble lift pin, spacer together with tractor lower link ball end eye - all onto lift pin (between ears of frame) - with spacers to the outside. Then secure into position using 7/16" diameter pin and ring.

Next slowly and very carefully reverse the tractor towards the machine linkage frame.

With care - ensure that tractor lower links fit between lower jaws of linkage frame and are aligned with relevant ball eyes now already on lower lift pins.

Raise tractor lower link arms to a position that allows the ball to engage correctly into its own housing in arm.

SWITCH OFF TRACTOR ENGINE AND ENSURE HANDBRAKE IS ON.

Fit top link assembly in the conventional manner - between tractor and Harrow, using correct pins.

Set machine to be level with ground by adjusting top link to suit.

On Hydraulic Harrow unit ensure service hoses from 'folding cylinder' are connected to tractor.

START TRACTOR

Raise Harrow by operating tractor three point linkage to a height suitable to allow the 2 stand leg units to be removed, these legs must now be inverted and placed back into existing brackets and secured with pin supplied.

REMOVING HARROW FROM TRACTOR

1. Select a good clear - level and firm site on which to detach and store the machine.

If Harrow is a 'folding' type - it is an advantage to fold both wings down into working position.

Stand legs must be inverted from the working position - after removing lock-pin turn leg and fit upward into its socket and secure with lock pin.

Operate tractor linkage and lower Harrow onto ground - to rest onto stand legs and front wheels. These will need adjusting to suit.

STOP THE TRACTOR (SWITCH OFF).

Disengage hydraulic service hoses (Hydraulic machines only).

START TRACTOR

Uncouple top link assembly by removing location pins.

Lower links must now be uncoupled - either by removing location pins (PIN TYPE HITCH) or by releasing auto catches on (AUTOMATIC HITCH).

Carefully drive tractor away from Harrow.

Note:- The advantage of folding both wings down to working position before parking-up Harrow is to reduce the chance of accidents by walking into Harrow tines - which if folded up are pointing outward.

TRANSPORTING

When transporting Harrow - either rigid unit or folded unit, normal driving care should be taken.

Allow for 'swing-out' due to length of machine, when turning.

Allow for total width of machine especially tines (looking outwards) on folded machines.

Ensure machine is raised high enough on linkage to clear the ground.

SETTING INFORMATION

SETTING DEPTH WHEELS

Depth wheels are secured into position by a pair of pins/linch pins. These pins will need to be removed and wheel leg raised or lowered to suit 'user need' and leg secured into chosen position by replacing 2 pins/linch pins.

SETTING TINES (DEPTH) 'ANGLE'

The tine setting angle can be varied on Harrow. This is done by:-

1. Remove pin and 'R' Clip from Multi-hole quadrant plate and joining arm member.
2. Move frame by either push/pull quadrant plate - OR - push/pull tines, until another hole in quadrant aligns with hole in joining member.
3. Replace 'R' Clip and pin in new selected position.

Note: This setting can only be set and judged by the user, as conditions and needs will vary.

PLASTIC BUFFER STOP/CHAIN SETTING

The drop-support chains between carrying Horseshoe frames and tine blocks must be positioned such that the two frames are not constantly in contact.

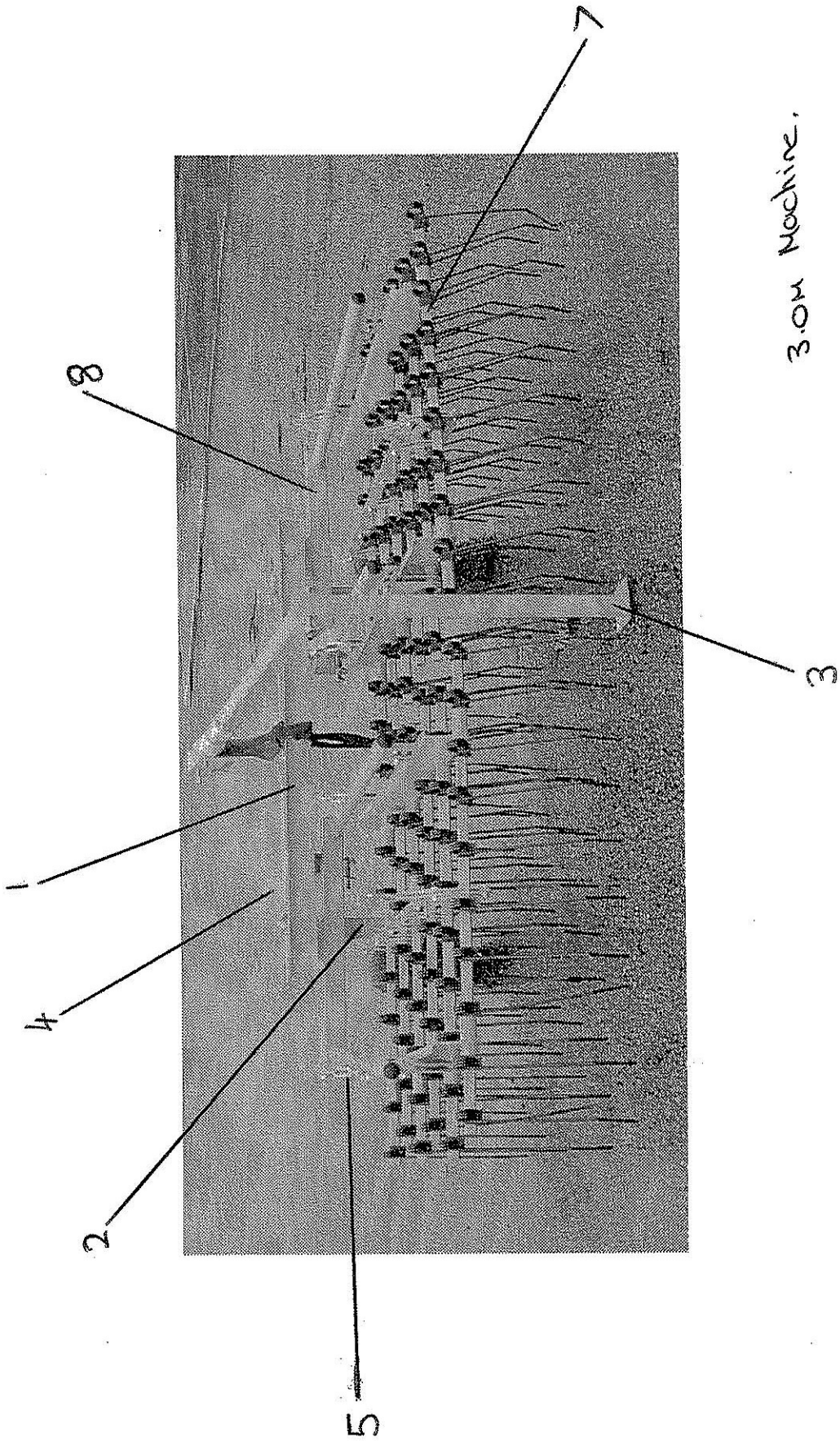
The bumper stop (plastic) is NOT a constant wear strip.

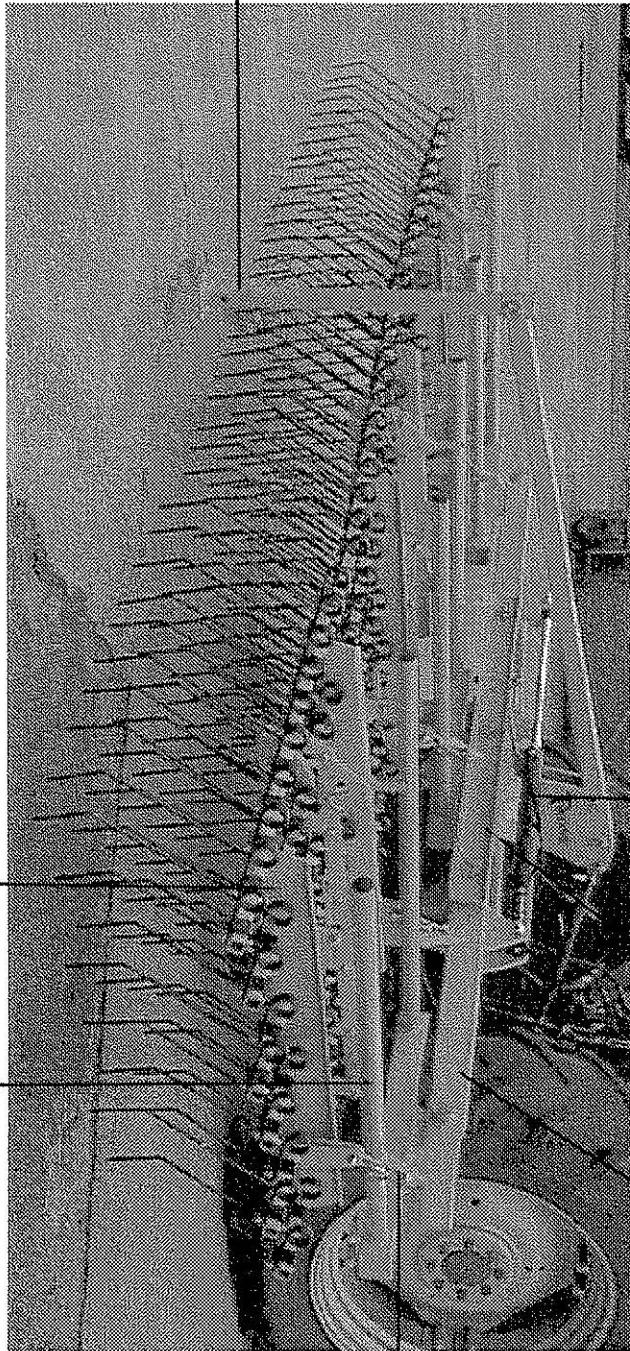


ITEM	PART NO	DESCRIPTION	QUANTITY					
			1.5M F1540	2.0 M F2040	3.0M F3040	4.5M F4540H	5.0M F5040H	6.0M F6040H
1	195.061A	TINE TUBE ADJUSTABLE	1	N/A	2	3	2	N/A
	195.061B	TINE TUBE ADJUSTABLE	N/A	1	N/A	N/A	1	3
2	195.060.001	SHORT LINK	2	2	4	6	6	6
3	11.192.91	PIN SHAFT LOCKING	1	1	2	3	3	3
4	05.291.19	BOLT	2	2	4	6	6	6
5	05.281.02	WASHER FLAT	4	4	8	12	12	12
6	05.287.02	LOCKNUT	2	2	4	6	6	6
7	195.O59	CHANNEL TINE BLOCK	2	2	4	6	6	6
8	195.060	ADJUSTING BAR	2	2	4	6	6	6
9	05.264.13	BOLT	8	8	12	24	24	24
10	05.281.02	WASHER FLAT	8	8	12	24	24	24
11	05.287.02	LOCKNUT	8	8	12	24	24	24
12	195.058	HORSESHOE	1	1	2	3	3	3
	195.063	HORSESHOE PIVOT PIN	1	1	2	3	3	3
	T7806	HORSESHOE PIVOT BUSH	2	2	4	6	6	6
	T8174	HORSESHOE PLASTIC BUNG	2	2	4	6	6	6
13	05.291.25	BOLT	4	4	4	6	6	6
14	05.281.03	WASHER FLAT	4	4	4	6	6	6
15	05.287.03	LOCKNUT	4	4	4	6	6	6
16	195.076	SPACER	2	2	4	6	6	6
17	195.074	DROP CHAIN	2	2	4	6	6	6
18	00.372.01	LINCH PIN	2	2	4	6	6	6
19	T1950016	SPRING TINE	60	84	120	180	204	252
20	T8183	TINE BRACKET	60	84	120	180	204	252
21	05.291.07	BOLT	60	84	120	180	204	252
22	T1950050	WASHER SPECIAL	60	84	120	180	204	252
23	05.287.01	LOCKNUT	60	84	120	180	204	252
24	05.291.25	BOLT	4	4	4	6	6	6
25	05.281.03	WASHER FLAT	4	4	4	6	6	6
26	05.287.03	LOCKNUT	4	4	4	6	6	6
27	195.071A	STD TINE TUBE	5	N/A	10	15	10	N/A
	195.071B	STD TINE TUBE	N/A	5	N/A	N/A	5	15
28	195.070	WHEEL BOX	2	2	2	2	5	2
29	T1657	PIN LINKAGE	2	2	2	2	2	2
30	T0853	PIN LINKAGE	2	2	2	2	2	2
31	195.064A	WHEEL BOX + AXLE	2	2	2	2	2	2
32	T0853	PIN LINKAGE	2	2	2	2	2	2
	T120014	SLEEVE LOWER LINK CAT 1-2	2	2	2	2	1	2
33	00.372.01	LINCH PIN	2	2	2	2	1	2
34	T1657	PIN LINKAGE	3	3	3	3	1	3
	T190050	SLEEVE TOP LINK CAT 1-2	1	1	1	1	1	1
35	T0832	LINCH PIN	3	3	3	3	4	3
36	200.007	TWOSE TRANSFER	2	2	2	2	4	2
37	195.081	CENTRE FRAME	1	1	N/A	N/A	N/A	N/A
	195.062	CENTRE FRAME	N/A	N/A	1	1	1	1
38	195.057A	WING ARM	N/A	N/A	N/A	2	N/A	N/A
	195.057B	WING ARM	N/A	N/A	N/A	N/A	2	N/A
	195.057C	WING ARM	N/A	N/A	N/A	N/A	N/A	2
39	195.067	BEAM FOR STAND	1	1	1	1	1	1
40	195.068	STAND	1	1	1	1	1	1
41	T1657	PIN LINKAGE	1	1	1	1	1	1
42	00.372.01	LINCH PIN	1	1	1	1	1	4
43	05.292.34	BOLT	4	4	4	4	4	4
44	05.281.04	WASHER FLAT	4	4	4	4	4	2



ITEM	PART NO	DESCRIPTION	QUANTITY					
			1.5M	2.0 M	3.0M	4.5M	5.0M	6.0M
			F1540	F2040	F3040	F4540H	F5040H	F6040H
45	195-072	REAR CLAMP PLATE (LEG BOX)	2	2	2	2	2	1
46	T1950065	RAM	N/A	N/A	N/A	1	1	1
	1950065.1	SEAL KIT	N/A	N/A	N/A	1	1	1
47	T8163	WHEEL COMPLETE	2	2	2	2	2	2
	T8170T	WHEEL HUB C/W BEARINGS	2	2	2	2	2	2
	T8170T.2	WHEEL HUB C/W BEARINGS	2	2	2	2	2	2
	T8170T.03	WHEEL HUB BEARING	4	4	4	4	4	4
	T8170T.04	CROWN NUT	2	2	2	2	2	2
	T8170T.07	WHEEL STUD	8	8	8	8	8	8
	T8170T.08	WHEEL NUT	8	8	8	8	8	8
	T8170T.01	WHEEL HUB CAP	2	2	2	2	2	2
48	05.292.45	BOLT RAM ANCOR	2	2	2	2	2	2
49	05.281.05	WASHER FLAT	4	4	4	4	4	4
50	05.287.05	LOCKNUT	2	2	2	2	2	2





4.5M, 5.0M, 6.0M Machine

SECTION 1

195.062	Centre frame	1	All models
0832	Linch Pin	9	All models
1657	Pin linkage (Bare)	6	All models
120014	Sleeve Lower Link Cat 1-2	1	All models
190050	Sleeve Top Link Cat 1-2	1	All models
0853	Pin linkage (Bare)	2	All models

SECTION 2

195.064	Wheel depth leg	2	All models
0832	Linch Pin	4	All models
8163	Wheel	2	All models
8170	Housing c/w bearing	2	All models
195.70	Socket Wheel Box	2	All models
2730	Spring Washer	4	All models
2867	Washer	4	All models
2914	Bolt	4	All models
195-072-	Rear clamp plate	2	All models

SECTION 3

195.067	Beam for stand	1	All models
195.068	Stand	1	All models

HYDRAULIC FOLDING MACHINE ONLY

SECTION 4

1950065	Ram	1
1825	Adaptor	2
7739	Adaptor	2
	Restricted 1mm	
0909	Seal	2
1181	Seal	2
5485	Coupling QR Male	1
4432	Coupling QR F/M	1
5385	Dust cap for QR	2
004.304	Hose 1/4" ST x 91 x 1800	2
3894	Bolt	2
3732	Stiffnut	2
3062	Washer	4
7806	Bush	4

Ram 1950065(Spares only) Parts:-

1950065.1	Seal Set
1950065.2	Rod Complete
1950065.3	Gland Nut
1950065.4	Bushes for ram
6956	Grease Nipple

SECTION 5

195.074	Drop Chain	4	for 3m machines
195.074	Drop Chain	6	for 4.5,5.0 & 6.0m machines

SECTION 6

195.057A	Wing Arm	2	for 4.5m machine
195.057B	Wing Arm	2	for 5.0m machine
195.057C	Wing Arm	2	for 6.0m machine

SECTION 7 (TINE BLOCK)

195.073	Tine Block (2m) (25mm spacing)	1	for 5.0m machine
		3	for 6.0m machine
195.069	Tine Block (1.5m) (25mm spacing)	2	for 3.0m machine
		3	for 4.5m machine
		2	for 5.0m machine

NOTE

for 3.0m machine, - 2 tine blocks 195.069 (25mm spacing)
 for 4.5m machine - 3 tine blocks 195.069 (25mm spacing)
 for 5.0m machine - 1 tine block 195.073 + 2 tine blocks 195.069 (25mm spacing)
 for 6.0m machine - 3 tine blocks 195.073 (25mm spacing)

COMPONENTS PER TINE BLOCK

		Quan. for Tine Block 195.073	Quan. for Tine Block 195.069
1950016	Tine	84	60
8183	Clamp bracket for tine	84	60
3262	Bolt	84	60
3182	Stiffnut	84	60
1950050	Special Washer	84	60
195.059	Channel tine block	2	2
195.060	Adjusting bar tine angle	2	2
195.61A	Tine tube adj.		1
195.061B	Tine tube adj.	1	
195.071A	Std tine tube		5
195.071B	Std tine tube	5	
2710	Setscrew	12	12
3219	Washer	24	24
4421	Stiffnut	12	12
8186	Pin shaft locking	1	1

SECTION 8 (HORSESHOE)

		3.0m m/c	4.5m m/c	5.0m m/c	6.0m m/c
195.058	Horseshoe	2	3	3	3
195.063	Pin	2	5	5	5
7806	Bush	4	6	6	6
3332	Washer	10	17	17	17
4421	Stiffnut	2	5	5	5
2699	Bolt	2	5	5	5
8174	Bungs	8	12	12	12
195.076	Spacer	4	6	6	6

MANUAL FOLDING MACHINE ONLY

SECTION 9 (SPRING ASSIST. KIT (MANUAL FOLD)) [NOT SHOWN]

195.037	Spring anchor (profile)	1
195.049	Mount for Spring	2
3523	Bolt	2
3062	Washer	2
3732	Stiffnut	2
7806	Bush	4
8162	Tension Spring	2

PARTS MODULES FOR
F1540 (1.5M) AND F2040 (2.0M)

		SF1540	SF2040
195.069	Tine Block 1.5m	1	-
195.073	Tine Block 2.0m	-	1
00.372.01	Linch Pin	7	7
05.281.02	Flat Washer	4	4
05.282.04	Spring Washer	4	4
05.287.02	Self Locking Nut	1	1
05.291.19	Bolt	1	1
05.292.34	Bolt	4	4
06.318.01	Pin	2	2
195.072	Clamp Plate	2	2
195.058	Horseshoe	1	1
195.063	Pin	1	1
195.064A	Wheel Box	2	2
195.070	Socket – Wheel Box	2	2
195.074	Drop Chain	2	2
195.076	Spacer	2	2
195.081	Mainframe	1	1
42930.04	Pin	2	2
T0853	Pin – Linkage	2	2
T120014	Sleeve – Lower Link	2	2
T1657	Pin – Linkage	1	1
T190050	Sleeve – Top Link	1	1
T2867	Washer	4	4
T410184	Transfer –Hi-Lighter	1	1
T410186	Transfer – Twose	2	2
T7806	Bush – Nylon	2	2
T8163	Wheel	2	2
T8170T	Hub and bearing	2	2
T8174	Bung	5	5



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