QUADCHIP 160

Operator's Manual

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INTRODUCTION

This manual explains the proper operation of your machine. Read these instructions thoroughly before operating and maintaining the machine. Failure to do so could result in personal injury or equipment damage. Consult your GreenMech supplier if you do not understand the instructions in this manual.

CAUTION! This symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury to yourself or others, and carefully read the message that follows.

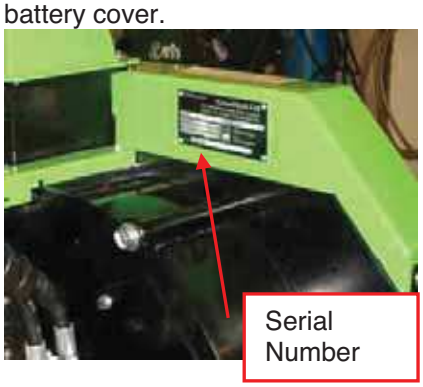
We recommend that you keep this manual with the machine in the box provided. Locate and note here the serial number and quote it in any communications. This is important when ordering spares. Remember to include all numbers and letters.

VIN Number……

Serial Number……

Write in the number!

Fig 1.1 Serial Number plate under battery cover.



This manual covers the following models.

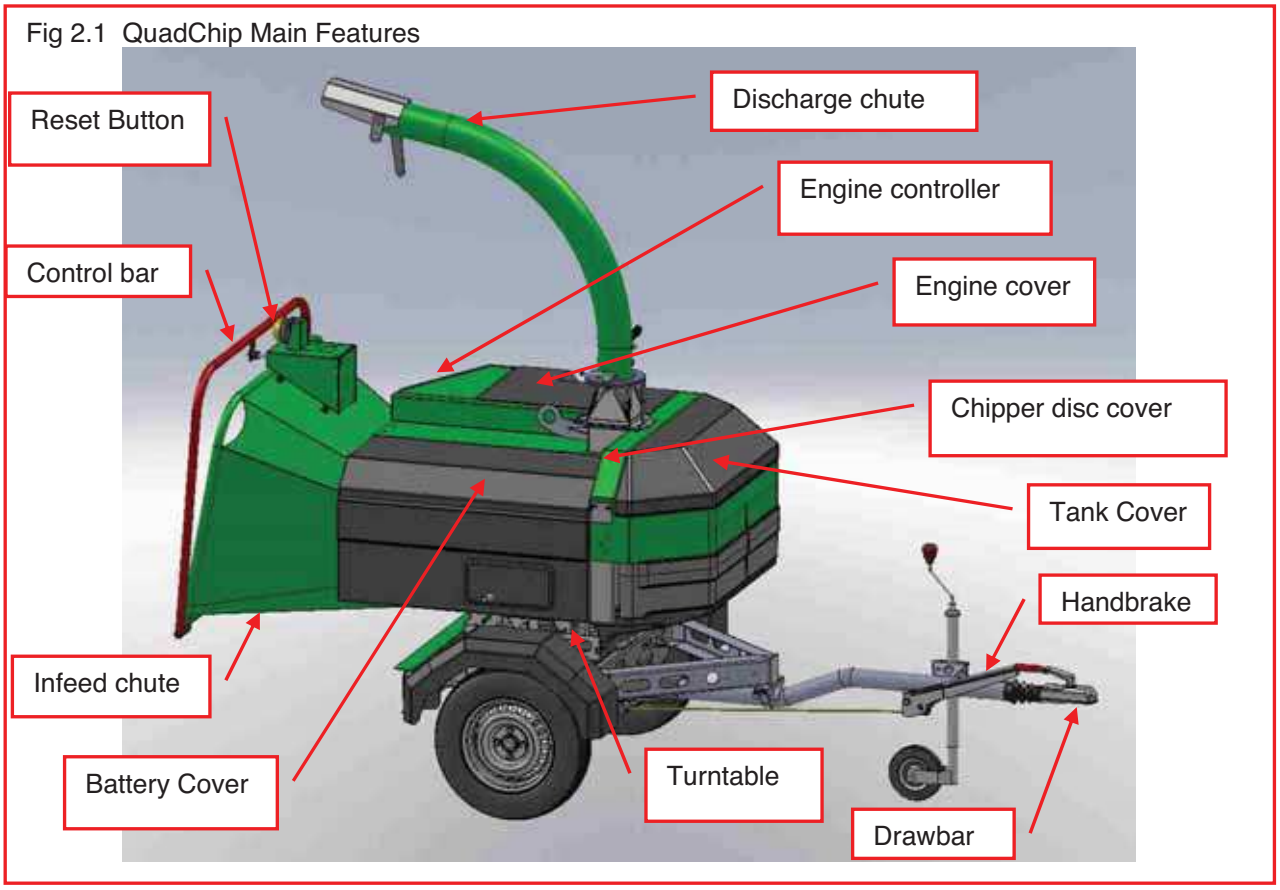
Quadchip trailed chipper with top control bar, turntable

The information in this manual is correct at the time of publication. However, in the course of development, changes to the machine specification are inevitable. Should you find any information to vary from the machine in your possession please contact your GreenMech dealer for up to date information.
This manual may contain standard and optional features and is not to be used as a machine specification.

PURPOSE

CAUTION! This machine is designed solely to chip wood and must not be used for any other purpose. The machine should only be used by trained operators who are familiar with the content of this instruction manual. It is potentially hazardous to fit or use any parts other than genuine GreenMech parts. The company disclaims all liability for the consequences of such use, which in addition voids the machine warranty.

Fig 2.1 QuadChip Main Features



TECHNICAL SPECIFICATION QuadChip 150 - 23	
Max Capacity	230mm X 158mm (9inch x 6inch)
Chipping Disc	500mm x 25mm
Speed	2400 rpm
Chipping Blades	2 Square Blades
Feed Rollers	2 x Hydraulic
Power Control	No-Stress Electronic Feed Roller Controller
Power Unit	Kubota 4 cyl. / Daihatsu 3 cyl. turbo
Length (Transport)	2675mm
Length (Work)	3255mm
Width (Transport and min. for Work)	1502mm
Height (Transport)	1656mm
Height (Work)	2545mm
Weight	745Kg

Noise
Noise levels vary depending on type of material being processed. Also duration of operation is variable. Noise emission tests have been carried out and the guaranteed sound power level is displayed on the CE plate as follows: **Lwa 116dba**
Minimise noise by switching to idle or stopping the engine whenever chipping is not in progress.


CAUTION! Operators must wear appropriate ear protection. Bystanders must be kept away from proximity of machine.

Lifting Points
There is a single central lifting point by the base of the discharge chute.


CAUTION! Lift with extreme care. The machine may tilt because the single lifting point may not be directly over the centre of gravity.

Drawbar and hitch
Ball type hitch with overrun brake and safety cable.


CAUTION! Ensure that the towing vehicle is correctly suited to the trailer weight and drawbar (nose) loading. If necessary check with national vehicle legislation.

3.1 ENSURE:

3.1.1 All Operators must be fully trained in the use of their machine.
(Certificated Operator training courses are available on request.)
3.1.2 The Operators Manual is read and understood.
3.1.3 The enclosed HSE guidance notes are read and understood.
3.1.4 Appropriate Personal Protective Equipment (PPE) is worn, including non-snag clothing, gloves, eye and hearing protection.
3.1.5 The machine is positioned on level ground and the machine must be level with the infeed chute at no more than 600mm (23.62 inches) above ground level (fig 3.4.3).
3.1.6 When the unit is detached from towing vehicle the handbrake is applied and if necessary the wheels are chocked.
3.1.7 All guards are fitted and in good condition.
3.1.8 Blades are in good condition and secure.
3.1.9 All blades are sharpened or replaced in “Sets”.
3.1.10 All fasteners are checked regularly for tightness.
3.1.11 Only “WOODEN” materials free of nails etc., are fed into the machine.
3.1.12 Correct First Aid Kit including large wound dressing is available on site.
3.1.13 Fire extinguisher is available on site.

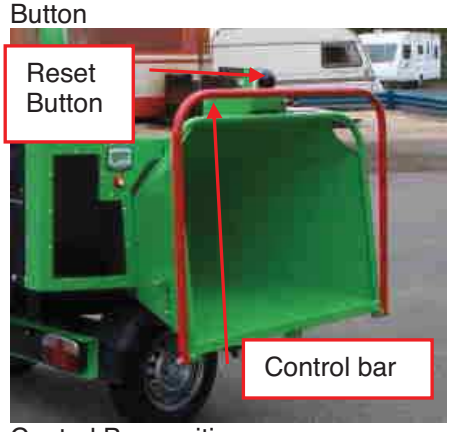
3.2 NEVER:

3.2.1 Work on the machine until the chipper disc is stationary and engine or PTO has stopped.
3.2.2 Operate the machine without protective clothing (Eye protection, Earmuffs, and Gloves), or high visibility clothing when working on roadside.
3.2.3 Operate with loose articles of clothing, including loose cuffs on gloves.
3.2.4 Work under a raised component without adequate safety support.
3.2.5 Operate the machine with untrained personnel or with individuals present who are not involved in the chipping operation.
3.2.6 Leave the machine unattended with engine running at full operating speed. (See section 4)
3.2.7 Put any part of your body into the infeed chute while the machine is running.
3.2.8 Operate the machine whilst under the influence of alcohol or drugs.
3.2.9 Operate inside a building or confined space.
3.2.10 Climb on the infeed chute.
3.2.11 Impede or obstruct the Stop control.

3.3 ALWAYS:

3.3.1 Check machine before starting (see Section 4 Preparation and Section 5.1 Operation: Pre-work checks).
3.3.2 Be aware of potential hazards in the work area, i.e. uneven ground, tree roots, trip/slip hazards, obstructions and type of materials being fed into the machine.
3.3.3 Feed from the side.
3.3.4 Keep clear of discharge area.
3.3.5 Have a second trained operator within easy reach of the machine.
3.3.6 Maintain strict discipline at all times.
3.3.7 Service machine at specified periods. (see Section 6: Routine Maintenance).
3.3.8 Note direction of discharge chute and if necessary note the wind direction to prevent debris from being blown into highway or where it could affect members of the public.
3.3.9 Remove key before doing any maintenance.

Fig 3.4.1 Control Bar and Reset Button



Control Bar positions
(Viewed towards left side of chute)
STOP FEED IN FEED OUT

FEED OUT FEED IN STOP
(Viewed towards right side of chute)

Fig 3.4.2 Engine Stop - Start

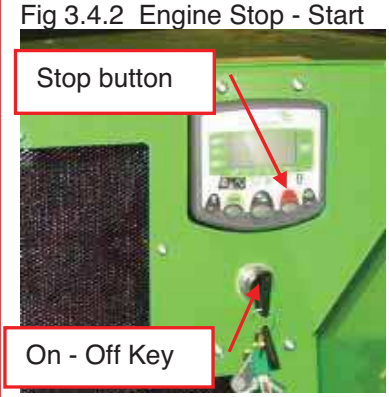
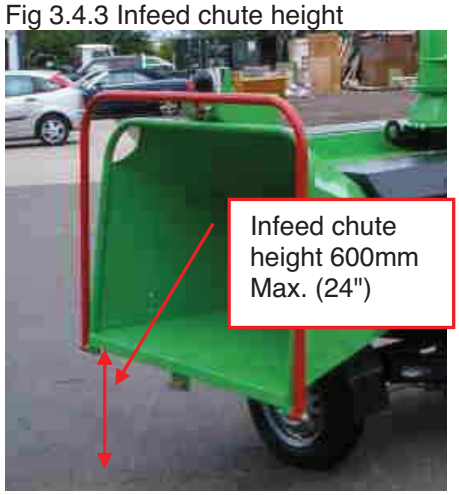


Fig 3.4.3 Infeed chute height



3.4 Safety Controls and Switches

3.4.1 Emergency Stop/Control Bar (fig 3.4.1)

In the event of an emergency, push the control bar right in to STOP the feed rollers.

3.4.1.1 Once the emergency has been rectified the following sequence should be carried out:

3.4.1.2 To restart rollers press the reset button, the control bar will have returned to the Feed In position.

3.4.1.3 Should the stop bar be tripped accidentally in normal working conditions, i.e. NOT an emergency, then the rollers can be recovered by performing the above sequence 3.4.1.2.

3.4.1.4 To reverse the rollers (feed out) pull the control bar outwards. To regain forward (feed in) push the control bar back towards the chipper.

3.4.2 Engine Stop button

3.4.2.1 To stop the engine, press the red stop button on the control unit, and/or turn the key anticlockwise to the '0' position. (fig 3.4.2).

3.4.2.2 To restart, reset the key clockwise to 1.

3.4.2.3 To disable the machine, remove the key.

⚠ CAUTION! Do not restart engine until hazard has been removed.

3.5 Control cut-outs

Cut-outs are installed to stop and prevent restarting due to specific events.

3.5.1 Engine overheating is protected by thermal cut-out switch in coolant circuit.

3.5.2 Low engine oil pressure is protected by pressure switch in the engine oil pump.

3.5.4 Discharge chute folded for transport is protected by a microswitch to shut off the fuel solenoid.

3.6 No Stress system

3.6.1 Speed sensor disables feed roller FEED IN or FEED OUT mode when engine speed is below factory pre-set value.

3.6.2 Overload sensor reverses feed to FEED OUT.

3.7 SYMBOLS on the MACHINE

These relate to operator safety, correct use and maintenance of machine. Check that all personnel understand and are familiar with meanings before using the machine.

Important Safety symbols

Take the correct action shown on the display below the stated hazard (see table)

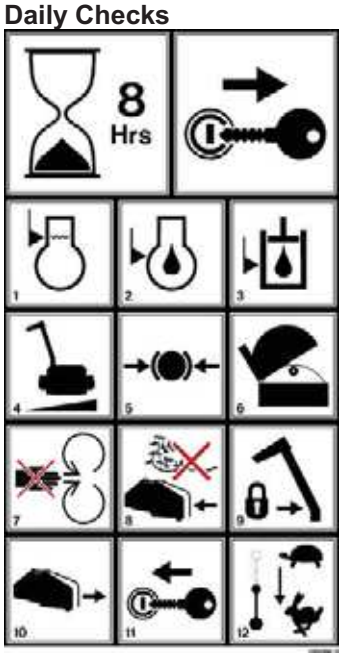
General Safety

Caution!		**Remove Key**		**Do NOT start engine**
Caution!	Beware flying object hazard	Beware noise hazard	Beware trapping hazard	Brakes off -incorrect
Read instruction manual	Wear helmet & visor	Wear ear protectors	Wear proper clothes	Brakes on -correct
Machine not level -incorrect	Beware flying object hazard	Beware flying object hazard	Beware exposed drives hazard	Caution!
Machine level -correct	Keep bystanders away	Position and lock discharge chute	Fit all guards	Keep nuts tight

Important Operating Checks Notice

Before use carry out daily the stated checks in the order shown (see table)

Daily Checks



Every 8 Hours – Daily checks		**Remove key stop engine**
1. Check coolant level	2. Check engine oil level	3. Check hydraulic oil level
4. Check machine is level	5. Check brakes are on	6. Check chipper disc is clear of debris
7. Check all guards are in place	8. Check infeed chute is clear of debris	9. Lock discharge chute
10. Pull control bar to work position	11. Start engine	12. Increase from Idle to Run

Important Safety Information

Caution! Beware of thrown object hazard

Action: Keepaway from fast discharge chute

Caution! Beware of thrown object hazard

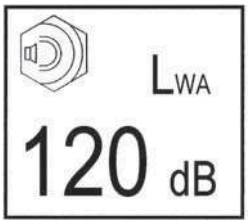
Action: Stand to side of infeed chute, NOT in centre.

Face shield must be worn

Caution!

Do NOT operate with infeed chute at more than 600mm from ground (top bar machine).

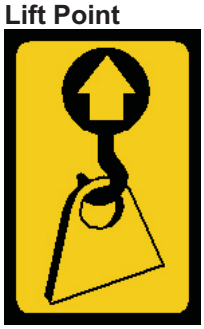
Sound level



Ear defenders must be worn

Ear defenders must be worn

Lift Point



Transport Lock

Lock this component before moving machine

Caution!

Do not climb into infeed chute

Caution! Infeed chute trapping hazards

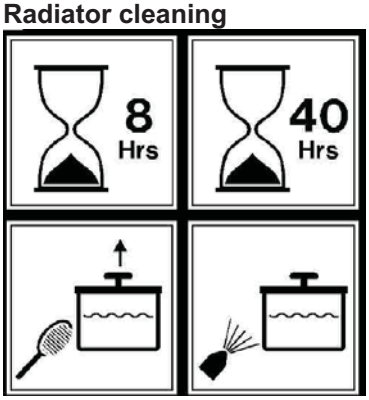
Keep hands clear. Do not climb in

Maintenance Information

Diesel Filler

Hydraulic Filler

Radiator cleaning



8 Hours	40 Hours
Check radiator screen	Blow out radiator core

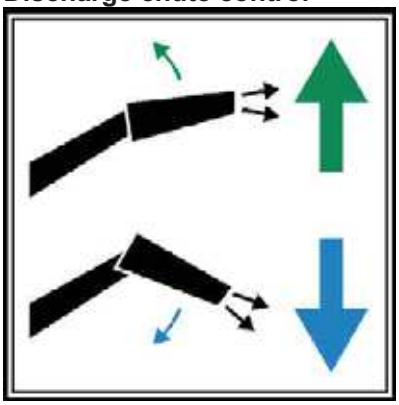
Grease point

40 hours / weekly

High temperature Grease 40 hours

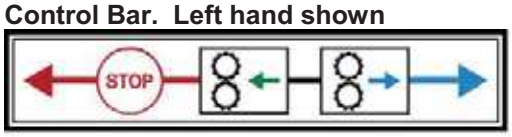
Operating Information

Discharge chute control



Green is UP: Blue is DOWN

Control Bar. Left hand shown



Push to stop: Centre-feed in: Pull–feed out

Fig 4.1 Trailer handbrake

Fig 4.2 1 Turntable

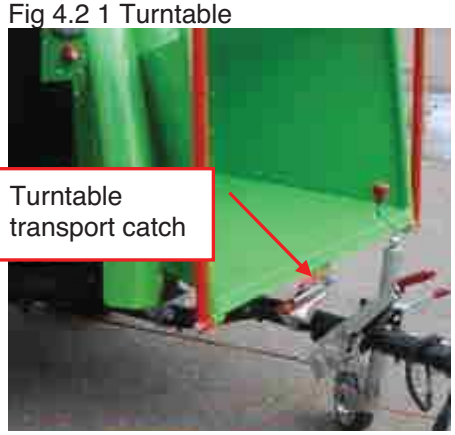
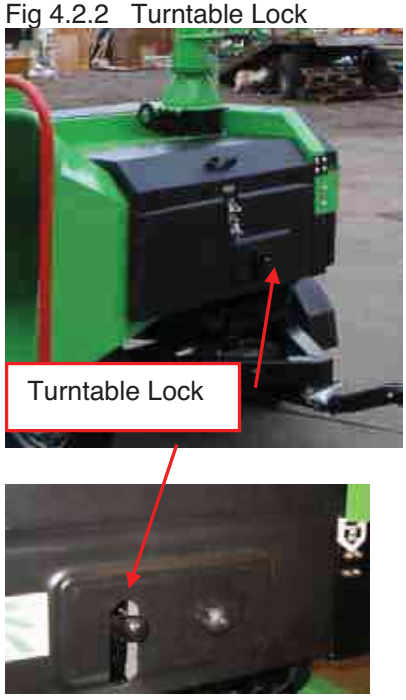


Fig 4.2.2 Turntable Lock



4.1 Initial Fuelling and Parking

4.1.1 Fill the fuel tank with diesel.
4.1.2 Top up the hydraulic tank if necessary, with the correct oil. See Section 6.
4.1.3 Position the machine on firm and level ground.
4.1.4 Apply the vehicle handbrake.
4.1.5 If the machine is detached from the vehicle, set the jockey wheel clamp to allow the jack screw to lift the drawbar clear of the vehicle hitch, apply the trailer handbrake (fig 4.1) and chock the wheels.
4.1. 6 Set the drawbar jockey wheel height to level the machine.

4.2 Turntable

To ease working on sides of busy roads the machine body can be locked in eight different working positions at 45deg steps in relation to the drawbar.
4.2.1 Release the transport catch.(fig 4.2.1).
4.2.2 Lift the locking handle (fig 4.2.2) and walk the body around to desired position.
4.2.3 Ensure that the body locks into new position.

⚠ CAUTION! A loaded vehicle increases the height of the infeed chute.

⚠ CAUTION! Before travelling, ensure that the turntable is rotated back into the transport position, locked and secured with transport catch.

4.3 Infeed Chute

4.3.1 Check the height of the infeed chute.
4.3.2 Press the reset button to enable the control bar to operate for use.

⚠ CAUTION! The infeed chute must not be used at more than 600mm from the ground. (fig 3.4.3).

Fig 4.4.1 Discharge chute transport pin

Fig 4.4.2 Discharge Chute (folded)

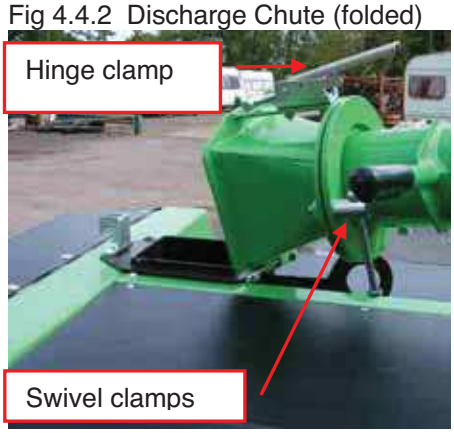


Fig 4.5 Work position (typical)

4.4 Discharge Chute

4.4.1 Remove the transport pin beside the infeed chute to release the discharge chute (fig 4.4.1).

4.4.2 Lift the discharge chute up into the work position.

4.4.3 Secure the hinge with overcentre clamp (fig 4.4.2) and bolt.

4.4.4 Release the swivel clamps, point the chute in the desired direction and tighten the clamps.

4.4.5 Set the flap at the desired height and tighten the clamp.

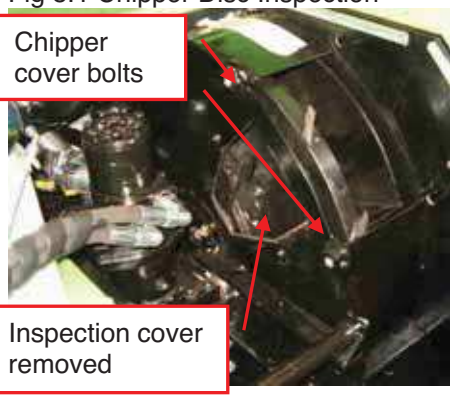
⚠ CAUTION! Do not point the discharge chute towards the infeed area.

⚠ CAUTION! Stow and secure the discharge chute in the transport position when travelling.

4.5 Work Position

Typical work position (fig 4.5) shown with infeed chute away and angled from drawbar and discharge chute pointing away from infeed.

Fig 5.1 Chipper Disc Inspection



5.1 Pre-Work Checks:

5.1.1 Check machine is stationary, Key in OFF position or removed, and hand brake applied if separated from vehicle.

5.1.2 Check that machine is level and infeed chute is not more than 600mm from ground (fig 3.4.3).

5.1.3 Check engine oil level (See Engine instruction manual).

5.1.4 Check hydraulic oil level (See Section 6).

5.1.5 Check fasteners for tightness and hydraulic connections for leaks.

5.1.6 Check condition of disc blades.

5.1.6.1 Unlock, raise and secure rear cover and battery cover. Check nothing is rotating.

5.1.6.2 Remove chipper disc cover -2 bolts (fig 5.1.1).

5.1.6.3 Remove inspection cover -2 bolts.

5.1.6.4 Carefully rotate chipper disc to check tightness of disc blade bolts and condition of blades.

5.1.6.5 Remove any loose wood material.

5.1.6.6 If any bolts are loose, refer to maintenance section for further action.

5.1.6.7 Replace inspection cover and chipper disc cover and tighten all bolts securely.

5.1.7 Remove any loose material and dust from radiator and engine bay

5.1.8 Replace all covers and secure.

5.1.9 Check discharge chute is in desired position away from infeed and all clamps are tight. (see Section 4.4)

5.1.10 Check work area and erect signs and cone off discharge area if necessary.

5.1.11 Check **ALL** safety procedures have been followed.

⚠ CAUTION! Beware sharp edges of discs and unexpected movement.

Fig 5.2 Engine Control Box

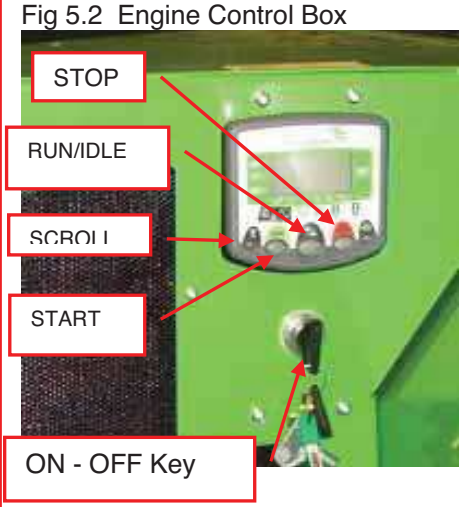
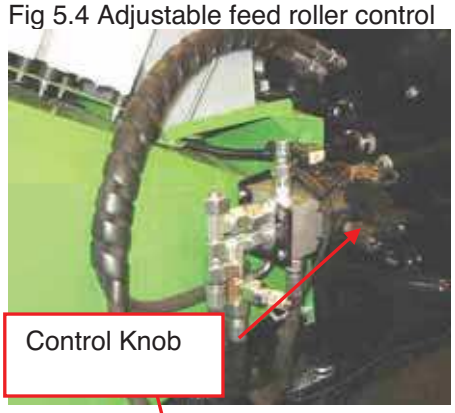


Fig 5.4 Adjustable feed roller control



Control knob settings

Material	**Setting**
up to 120mm	Fully open (3 turns)
120 - 150mm	1/2 to 3/4 turn

5.2 Starting Machine (Fig 5.2)

5.2.1 Check all other personnel are clear of machine.
5.2.2 Check that feed roller control bar is pushed to the FEED OUT or STOP position, to make the machine safe.
5.2.3 Turn the ON - OFF key to position **I**. Wait for the pre-glow countdown to cease and chipper speed 0 rev/min to be displayed.
5.2.4 Press green START button to start the chipper.
5.2.5 Press the RUN/IDLE button to increase the speed to operating speed.
5.2.6 Press the reset knob at control bar (fig 3.4.1) to set the control bar ready for work.

5.3 Stopping Machine

5.3.1 Push the control bar to STOP position.
5.3.2 Press the RUN/IDLE button and allow chipper disc to slow down (fig 5.2).
5.3.3 Press red STOP button to stop the engine.
5.3.4 Switch ON - OFF key to position 0.
5.3.5 Wait for chipper disc to stop.

⚠ CAUTION! The chipper disc will take several seconds to stop due to its inertia.

5.4 Adjustable Speed Feed Roller Control (if fitted)

When chipping wood sizes larger than 120mm diameter it may be necessary to reduce the feed roller speed to suit the material being chipped.
The control knob can be carefully accessed from the battery cover.
5.4.1 Release the back-nut and turn the valve control knob (fig 5.4) clockwise until valve is closed.
5.4.2 Turn the knob anticlockwise to the recommended setting in the table.
5.4.3 Tighten the back-nut, lower and secure the cover.

⚠ CAUTION! Do not leave covers open whilst machine is running.

5.5 Operating Hints

5.5.1 Check that chipper disc is at full speed, rpm readout should be above 2300 rpm.
NOTE: The “No Stress” system will only allow FEED IN (Forwards) and FEED OUT operation of the feed rollers when the machine is running at FULL operating speed and not overloaded.
5.5.2 Reduce the chipper speed to IDLE whilst further material is collected for chipping.
5.5.3 Take care when feeding wood into the machine to allow for awkward shapes to “KICK” when contacting the feed rollers.
5.5.4 Position the end of larger sections of wood inside the infeed chute and then support the other end whilst pushing the wood into the feed rollers.

⚠ CAUTION! Do not release discharge chute clamps when chipping is in progress. Elevation of the discharge is altered by means of the adjustable flap (fig. 4.4).

⚠ CAUTION! Keep working area around the machine clear at all times and check only authorised personnel are present.

5.6 Preparing For Transport On Completion Of Work

5.6.1 Check that engine has stopped and chipper disc is stationary.
5.6.2 Remove surplus material from infeed chute and all machine surfaces.
5.6.3 Unlock, lift and secure covers to remove debris.
5.6.4 Lower discharge chute into transport position and secure with pin.
5.6.5 Rotate turntable to transport position and secure infeed chute over drawbar.
5.6.7 If detached, re-attach trailer to vehicle, raise jockey wheel, connect safety cable and electric services.

Fig 5.6 Machine ready for transport

1) Discharge chute folded and secure
2) Turntable set with infeed over drawbar and secured
3) All covers closed and locked

ROUTINE MAINTENANCE SCHEDULE

CAUTION! Always remove key and check for rotation before carrying out any maintenance.

Note: Battery, engine and tank covers are secured closed with a key. Remove when open by raising fully and lifting forward to unhook hinge. Replace when task is completed.

Action	Section	Page
DAILY		
Check engine oil level and coolant (ref: engine manual)	6.2 – 6.3	6-4
Check hydraulic oil level	6.4	6-4
Check fuel level	6.5	6-4
Check all drive belts	6.6	6-4
Check condition of blades and retaining bolts	6.7	6-5
Note: Special tools required		
Clean radiator screen and around radiator	6.8	6-6
Check feed roller control bar function	3.4	3-2
First 50 hours		
Check drive belt tension	6.9	6-6
Check battery levels	6.13	6-7
Check wheel and tyre condition and pressures	6.14	6-7
Check brake condition and operation	6.15	6-8
Check hydraulic connections	6.17	6-9
Check all mountings	6.18	6-9
Check feed roller control bar function	3.4	3-2
Service engine	Refer to engine manual	
Weekly in addition to Daily actions		
Blow out radiator core with air line	6.8	6-6
Check drive belt tension	6.9	6-6
Steam clean machine	6.10	6-6
Clean air cleaner	6.11	6-6
Check electrical connections	6.12	6-7
Check battery levels	6.13	6-7
Check feed roller control bar function	3.4	3-2
Check wheel and tyre condition and pressures	6.14	6-7
Check and adjust brakes	6.15	6-8
Grease all bearings and pivots	6.16, 6.1	6-8
Check hydraulic connections	6.17	6-9
Check all mountings	6.18	6-9
250 hours in addition to Daily and Weekly actions		
Check all fluid levels	6.2, 6.3, 6.4	6-4
Check brake condition and operation	6.15	6-8
Check condition of bearings and pivots	6.16	6-8
Service engine	Refer to engine manual	
Check axle mounting bolts for tightness	6.18	6-9
Replace return filter element	6.19	6-9

1000 hours in addition to 250 hour actions		
Change hydraulic oil when replacing filter element	6.20	6-9

ENGINE MAINTENANCE **REFER TO ENGINE MANUAL**

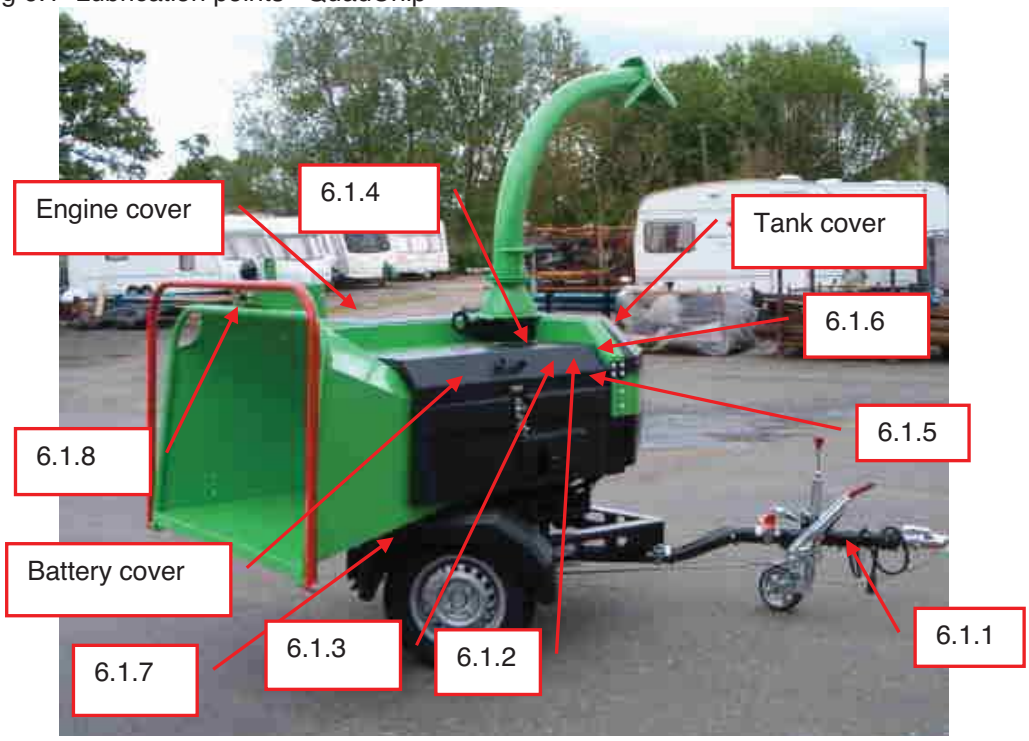
WHEELS AND BRAKES **REFER ALSO TO AL-KO CHASSIS MANUAL**

Tyre Pressure **2.7 bar (40 lb/in^2)**

Recommended lubricants	Specification
Hydraulic Oil	ISO 32
Grease	Complex grease EP2 (high temperature)
Engine	SAE 15W-40 APICD

6.1 Lubrication Points (see 6.14)

Fig 6.1 Lubrication points QuadChip



Grease except where stated

6.1.1	Drawbar	2 nipples
6.1.2	Feed roller slide	Clean and grease sparingly
6.1.3	Sliding Feed roller bearing	1 nipple under battery cover
6.1.4	Fixed Feed roller bearing	1 nipple under battery cover (see note 1)
6.1.5	Chipper Disc front bearing	1 remote feed nipple (Fig 6.1.3)
6.1.6	Chipper Disc rear bearing	1 remote feed nipple (Fig 6.1.3)
6.1.7	Turntable (if fitted)	2 remote feed nipples (Fig 6.1.3)
6.1.8	Feed Roller control	Clean and grease sparingly
6.1.9	Drive Belt Tensioner	1 nipple under tank cover (fig 6.1.4)

Note 1: Do not over-grease bearings as damage to seals may occur.
Note 2: Use high temperature grease on chipper disc bearings.

Fig 6.1.2 Grease nipples and slides under battery cover

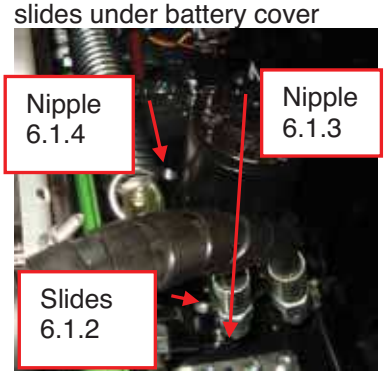


Fig 6.1.3 Remote grease nipples

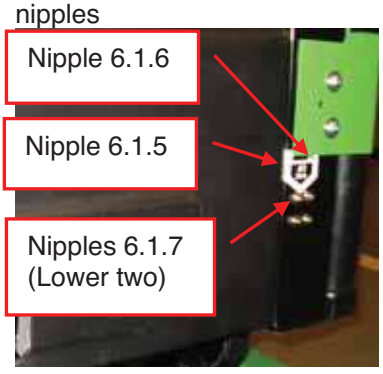


Fig 6.1.4 Grease nipple for belt tensioner under tank cover

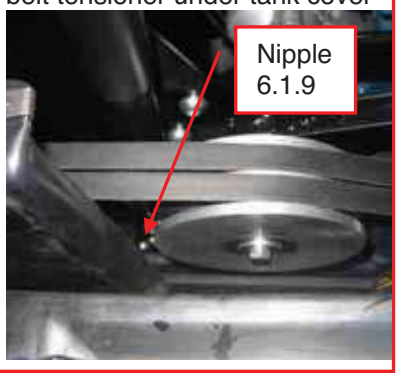


Fig. 6.2a Engine dipstick (Kubota)

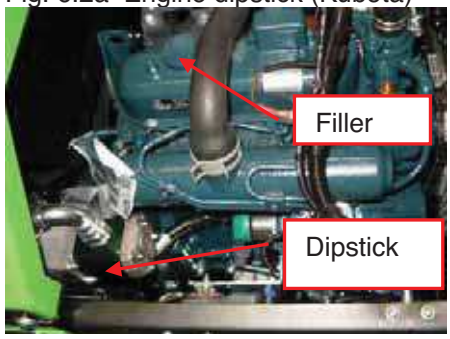


Fig. 6.2b Engine dipstick (Daihatsu)

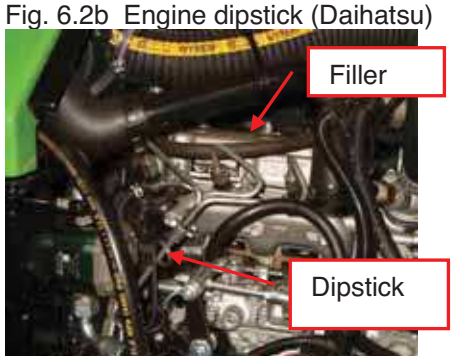
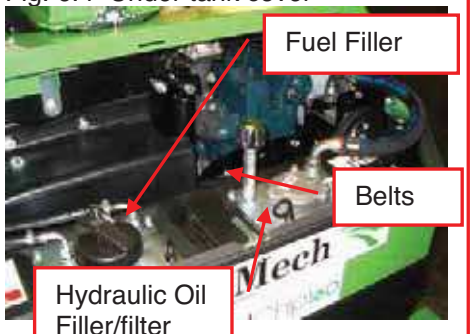


Fig.6.3 Coolant

Fig. 6.4 Under tank cover



6.2 Engine Oil (Under engine cover)
6.2.1 Check daily (fig 6.2). Refer to engine manual to refill.

6.3 Coolant (Under Engine cover)
6.3.1 Check daily, both radiator and overflow tank (fig 6.3). Refill as required. Check antifreeze.

⚠ CAUTION! Do not remove cap when engine is hot.

6.4 Hydraulic Oil (Under tank cover)
6.4.1 Check daily (fig 6.4). If below mark check for leaks and refill to correct level.

6.4.2 1000 hours. Remove drain plug, drain tank and refill with clean oil of correct specification. Replace filter (6.18)

6.5 Fuel Level (Under tank cover)
6.5.1 Check daily before work and fill as required (fig 6.4).

⚠ CAUTION! Use clean diesel fuel only. If in doubt, use a funnel with a filter.

⚠ CAUTION! Do not use any form of synthetic fuel.

6.6 Drive Belts (Under tank cover (fig 6.4))
Check daily, before work, the condition of all drive belts and replace if worn. See section 6.9 for further information.

Fig 6.7.1 Chipper Disc Inspection

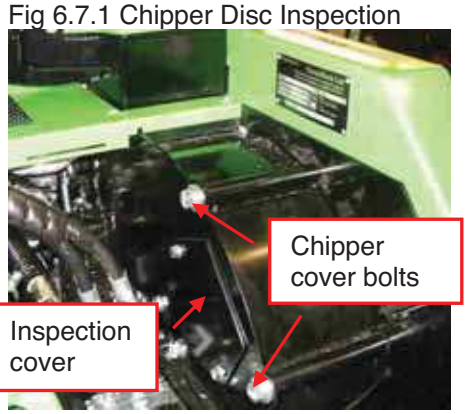
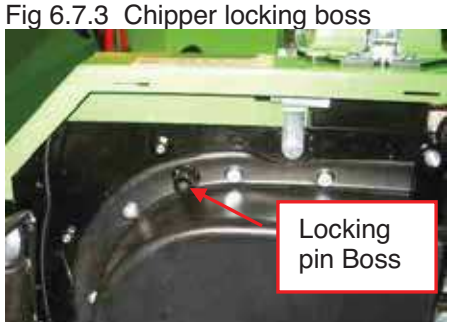


Fig 6.7.2 Chipper Disc Inspection

Fig 6.7.3 Chipper locking boss



6.7 Disc- Blade Rotation and Replacement for Square or Duo Blades

see page 6-11

The design of the blades permits relocation in at least three rotated positions or four if square blades are fitted before regrinding or replacement is required

6.7.1 Check engine is switched off and start knob removed.

6.7.2 Remove battery cover and tank cover. Check any rotation has stopped.

6.7.3 Remove the bolts retaining chipper disc cover and inspection cover (fig 6.7.1) and remove covers (fig 6.7.2).

⚠ CAUTION! Beware sharp edges of blades and unexpected movement.

6.7.4 Lock the chipper disc with a chipper disc cover bolt or suitable pin through the locking pin boss (fig 6.7.2) into a fan blade.

6.7.5 Slacken blade retaining bolt, remove cutter, and clean mounting face and location.

6.7.6 Replace blade in a rotated position to present a sharp section to the shear bars.

6.7.7 Torque up bolt to 150NM (110lb.ft.)

6.7.8 Remove locking pin and rotate disc to next position.

6.7.9 Check condition and security of shear bars. Rotate or replace if required. Do not regrind.

6.7.10 Replace and secure all covers.

⚠ CAUTION! Blades must only be sharpened by grinding the angled back face on a bench grinder. Grinding of the front face will upset the gap, which is factory set. Do not sharpen with hand held equipment.

Note. If any of the blades are worn below the flat annular section a complete set should be replaced. Inspect condition of nuts and bolts and replace if any signs of wear.

All blades must be sharpened in “sets” with equal amounts removed to maintain balance.

Fig.6.8 Radiator

Fig 6.9.1 Drive Belt tensioner

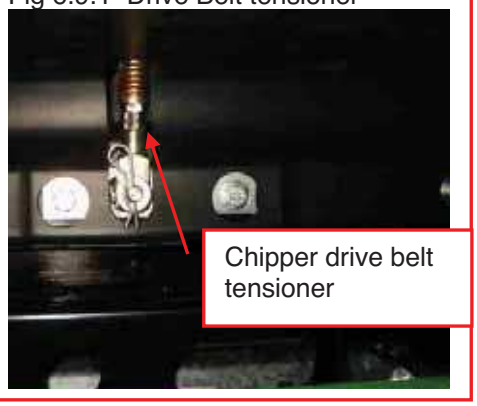
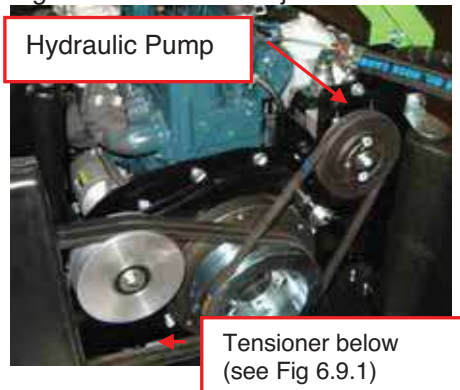


Fig 6.9.2 Drive Belt access

Fig 6.9.3 Drive Belt adjustments



6.8 Radiator (under engine cover)
Daily
6.8.1 Check radiator for debris. (fig.6.8)
50 hours or weekly
6.8.2 In addition to above, blow out radiator core from back with suitable airline and clear from front.

⚠ CAUTION! A build up of debris risks overheating of the engine and a risk of fire.

6.9 Drive belts
Belt Replacement
6.9.1 Remove tank covers from machine (fig 6.9.1).
6.9.2 Hinge tanks away from drive belt area (fig 6.9.2).
Chipper Drive
6.9.3a Remove fan cover.
6.9.4a Release nuts on idler pulley tensioner bar until belts are slack enough to be removed.
Pump drive
6.9.3b Release 4 bolts in slotted pump mounting plate to permit belts to be removed.
6.9.5 Fit new set of belts ensuring they lay snugly in pulley grooves.
6 9.6a Screw nuts on tensioner bar to re-tension belts.
6.9.6b With suitable bar ease pump plate upwards to tighten belts and secure plate with bolts.
6.9.7 Check tension.
6.9.8 Replace fan cover if removed, reposition tanks, replace all covers and secure.

6.10 Steam Cleaning
Weekly and every 250 hours
6.10.1 Check all covers are fitted and closed.
6.10.2 Steam clean machine surfaces.
6.10.3 Clean electrical components with a damp rag, spray with WD40 and then wipe with dry rag.

⚠ CAUTION! Do not steam clean directly on to electrical components, e.g. control boxes.

Fig 6.11 Air Cleaner

6.11 Air Cleaner (under engine cover)
Weekly (Refer to engine manual)

6.11.1 Remove cover clips (fig 6.11) and release.
6.11.2 Slide out element and either blow out with air-line or gently tap on smooth ground to release debris.
6.11.3 Replace cover.

6.12 Electrical connections
weekly

6.12.1 Check all wiring loom connections are secure.

⚠ CAUTION! Poor connections will affect engine security cut-outs and may prevent starting.

6.13 Battery
First 50 hours and weekly

6.13.1 Remove battery cover.
6.13.2 Release stays to access battery.
6.13.3 Check electrolyte level and top up if required.
6.13.4 Reposition battery, and secure stays.
6.13.5 Refit cover and secure.

Removal

6.13.6 First disconnect negative (-) cable (black cap).
6.13.7 Disconnect positive (+) cable (red cap).
6.13.8 Remove clamp and carefully lift out battery.
6.13.9 Replace by connecting positive cable before negative.
6.13.10 Secure battery as 6.13.4 above.

⚠ CAUTION! Gases are explosive. Electrolyte is corrosive. Avoid sparks and spillage.

Fig 6.13 Battery

6.14.4 Tyre sealant

Tyres installed with Air-Seal Products water based sealant have either green valve cap or green ring around valve. Tyres will operate in same fashion as normal pneumatic tyre.
Note If valve core is depressed to deflate tyre, valve recess may become blocked with plug of sealant. To unblock either remove valve core to allow air to blow plug out or alternatively blow plug back into tyre with airline.
For replacement supply, consult GreenMech or distributor.

6.14 Tyres and Wheels
50 hours and 250 hours

6.14.1 Check condition of tyres.
6.14.2 Check pressures and inflate to 2.7bar (40lb/in^2) pressure as required.
6.14.3 Check wheel nuts are tight to 110Nm (80lbft) torque.

Fig 6.15.1 Brake adjustment

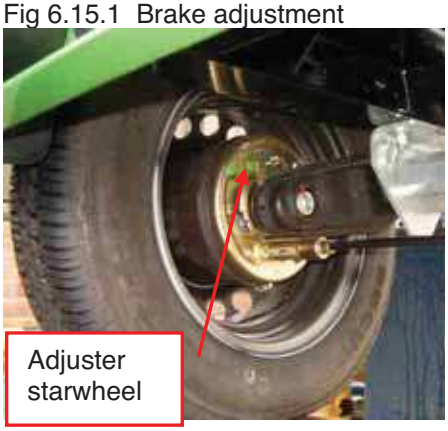
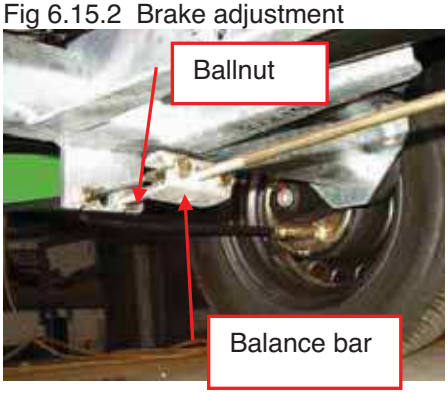


Fig 6.15.2 Brake adjustment



6.15 Brakes

50 hours, weekly and 250 hours

6.15.1 Check operation and effectiveness of overrun and handbrake.

100 hours

Adjust brakes as follows

6.15.2 Chock machine, release handbrake fully off and check drawbar is fully extended.

6.15.3 Jack up both wheels and support on axle stands.

6.15.4 Remove inner bung to expose adjuster 'starwheel' (fig 6.15.1).

6.15.5 Adjust starwheel with screwdriver until tight whilst rotating each wheel forwards until tight.

6.15.6 Slacken until wheel rotates freely in forward direction.

6.15.7 Check brake linkage has 4 to 6mm movement at cable.

6.15.8 Repeat for opposite wheel.

6.15.9 Check balance bar is straight and pulls both cables evenly (fig 6.15.2).

6.15.10 Adjust the ballnut to remove any slack from brake rod.

Note: Servicing of brakes may be required more often if above average mileage is covered.

Refer to AL-KO brake manual or GreenMech for details for brake shoe replacement and other servicing

⚠ CAUTION! Reverse rotation of wheel may prevent correct adjustment.

6.16 Bearings and Pivots

weekly

See paragraph 6.1 for routine lubrication.

250 hours

6.16.1 Check rotating components for excessive movement and noise in operation.

6.16.2 Replace as required.

Note: Wheel bearings are maintenance free and do not require attention.

Fig 6.19 Hydraulic Return Filter

6.17 Hydraulic connections
50 hours

6.17.1 With the aid of the circuit diagram to follow the hose routings, check all hoses and connections for leaks and damage.

6.17.2 Replace any worn or damaged hoses with the correct type and length.

6.17.3 Before removal, check routing and ensure replacement hose is fitted free of strains, twists or kinks.

⚠ CAUTION! Ensure any residual pressure is released before dismantling.

⚠ CAUTION! Ensure hoses are refitted free of twists and kinks.

6.18 Mountings
250 hours

6.18.1 Check that all mounting bolts are tight.

6.19 Hydraulic Return Filter
250 hours

6.19.1 Check oil is cool.

6.19.2 Unscrew the filter cover (there is a spring under the cover) and carefully lift out the element, it may require gentle prising out, discard safely (fig 6.19).

6.19.3 Fit a new filter element to the correct specification and replace the cover and spring.

⚠ CAUTION! Do not overtighten.

6.20 Hydraulic Oil change
1000 hours

6.20.1 Remove hydraulic oil with suction pump at filter/filler and replace with new oil and filter of correct specification.

6.20.2 Replace suction filter.

6.20.3 Dispose of waste oil according to local authority environmental procedures.

6.21 Fuses and No Stress system

There are two fuses.
A 40 amp in-line fuse protects the engine pre-heat and start circuit.
A 20 amp fuse protects the Power Protection System.

Note The engine operating speeds for the No Stress system are factory set for particular machine builds and must not be readjusted.

6.22 Fault finding

Fault	Check	Action	Page
Engine will not start	Covers and discharge chute cut-out switches	Secure guards and Chute	
	Battery	Recharge	6-7
	Fuel	Fill tank	6-4
	Oil pressure	Check Oil level	6-4
	Thermal cut-out	Check operation	6-4
	Fuses	Check	6-9
Engine not at correct speed	Engine control	Check operation	5-2
Chipper disc will not start	Drive belts	Replace	6-6
Feed rollers do not turn	Control bar	Reset and check	3-2
	Hydraulics	Check solenoid valve	
Feed will not reverse	Control bar	Reset and check	3-2
	Hydraulic valve	Check operation	
Discharge does not flow	Discharge chute	Check for blockage	4-2
	Chipper disc	Check for blockage	5-1
Unusual noise(s)	Chipper disc and bearings	Check and replace	5-1

GreenMech Square & Duo Blade Retention

The Square & Duo Blades use a patent Nord-Lock washer pair together with a thinner Nyloc type locking nut at an increased torque setting of 200Nm. See fig 1.

Fig 1 Square blade fastening assembly

Fig 2 Washer pair

Refer to Blade replacement procedure in Instruction Manual Section 6.7, noting Cautions.

⚠ CAUTION! Beware sharp edges of blades and unexpected movement.

1) Remove and discard existing nut, washer and bolt.
2) Thoroughly clean blade and mounting face in flywheel
3) Fit new bolt, washer pair and nut.

Note: Ensure that the two washers are assembled as a pair with faces of fewer teeth facing each other (fig 2). Thread lubricant is recommended to ensure even torque. Do not use thread adhesive (e.g. Loctite).

4) Tighten to torque of 200Nm.
5) Repeat for other blade.
6) Replace all covers according to instruction manual.

Reuse:
Nord-Lock washers can normally be re-used when cleaned and relubricated.
Nyloc nuts should always be inspected for damage before reuse.

7.1 Storage

7.1.1 Thoroughly clean machine and note any replacement parts required.
7.1.2 Carry out 250 hour service if not already done. Refer to Section 6
7.1.3 Fit replacement parts when available.
7.1.4 Remove battery Refer to 6.13
7.1.5 Drain fuel
7.1.6 If machine is to be stored for more than 3 months, place on axle stands to remove weight from wheels.

7.2 Removal from Storage

7.2.1 Charge battery and refit Refer to 6.13
7.2.2 Check tyre pressures Refer to 6.14
7.2.3 Check brake operation Refer to 6.15
7.2.4 Carry out machine preparation as necessary Refer to Section 4

When the machine is finally scrapped, the following items should be disposed of only at authorised waste disposal facilities.

Engine oil. Hydraulic oil. Antifreeze. Battery. Tyres.

If in doubt, consult the Local Authority environmental department.

Major non-ferrous items such as covers and hydraulic hoses may also be disposed of separately.

Safety Guides and Checklist as Transcribed from and Advised by Arborculture & Forestry Advisory Group and Issued as Leaflet 604 by HSE, issued 04/03

INTRODUCTION

This leaflet covers the safe working practices to be followed when operating a wood chipper.

It does not cover a combination of machines working within each other's risk zones (see AFAG leaflet 605 ***Mechanical roadside processing***)

You can use this leaflet, along with the manufacturer's handbook, as part of the risk assessment process to help identify the controls to put in place when using a wood chipper.

You must also assess the effect of the site and the weather as well as following this guidance

All operators must have had appropriate training in how to operate the machine and how to carry out the tasks require (see AFAG leaflet 805 ***Training and certification)***

PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. Use the following PPE

- A Safety Helmet, complying with EN 397, if identified as required in the risk assessment.
- Eye Protection (a mesh visor complying with EN1731 or safety glasses to EN166)
- Hearing protection (complying with EN352) where noise level exceeds 85 dB(A) (see HSE pocket card INDG363 ***Protect your hearing or lose it!)***
- Gloves.
- Safety Boots with good grip and ankle support (complying with EN345-1)
- Non-Snag Outer Clothing appropriate to prevailing weather conditions. High-visibility clothing (complying with EN471) should be worn when the risk assessment identifies that it is needed.

2. Each person should carry a personal first-aid kit including a large wound dressing (see HSE leaflet INDG214 ***first aid at work; Your questions answered).***

3. Hand cleaning material such as waterless skin cleanser or soap, water and paper towel should be readily available.

THE MACHINE

4. Before working with a machine, check it has been properly converted from any transport mode.

5. Ensure guards for dangerous parts (e.g. belts, pulleys, shafts etc) are secure and undamaged.

6. Ensure protective devices, such as the infeed control bar (incorporating the stopping device), are working correctly (see HSE leaflet AI S 38 ***Power-fed mobile wood chippers: Operator protection at infeed chutes).***

7. Ensure any lock for the chipping components has been disengaged;

8. Ensure the infeed hopper is clear of any materials.

9. Ensure Noise warning signs are in place.

10. For machines driven by a power take-off (PTO) shaft, before starting ensure:

- The PTO shaft is fitted with a suitable guard complying with EN1152, that encloses the shaft along its full length from tractor to machine.

- The guard is correctly fitted and in effective working order (see AS24(rev) ***Power take-offs and power take-off drive shafts);***

- The PTO speed is suitable for the machine.

SELECTING THE WORK AREA

11. Select as firm a surface as possible and stabilise the machine

12. Ensure ventilation is adequate and any exhaust fumes are vented into open air if working in an enclosed space.

13. Where appropriate, if the chipper is detached from the tow vehicle, apply the handbrake and, if necessary, chock the wheels.

14. On all reasonably foreseeable approaches to the worksite, erect warning and prohibition signs conforming to the Health and Safety (Safety Signs and Signals) Regulations 1996, indicating a hazardous worksite and that unauthorised access is prohibited. In areas of very high public access, a risk assessment may indicate that additional controls (e.g. barrier tape, barriers, extra manning) are required.

15. Ensure all operations near to highways are adequately signed with the appropriate notices as specified in the DTLR Code of Practice ***Safety at street works and road works (***available from The Stationary Office ISBN 0 11 551958 -0)

16. Ensure that the discharge chute is positioned to prevent chips being blown onto the highway during roadside operations, or in any direction where they can affect colleagues or members of the public.

17. Position the chipper so that operators do not have to stand on embankments/slopes when feeding material into the machine

EMERGENCY PROCEDURES

18. Ensure a designated and responsible person knows the daily work programme and agree with them a suitable emergency contact procedure. Where reasonably practicable use a mobile phone or radio and pre-arrange call-in system.

19. Ensure the operators can provide the emergency services with enough detail for them to be found in the event of an accident, e.g. the grid reference, the distance from the main road, the type of access (suitable for car/four-wheel drive/emergency service vehicles). In urban areas street names are essential. Know the location details before they are needed in an emergency. (Also see AFAG leaflet 802 ***Emergency planning)***

OPERATION

20. Make sure the cuffs of gloves are close fitting or tucked into you're sleeves to stop them being caught on material as it is fed into the chipper.

21. Set the engine speed (and set the stress control if fitted) to obtain optimum performance.

22. Check that material to be chipped is free from stones, metal and foreign objects.

23. Stand to one side of the infeed rollers to avoid being hit by ejected material.

24. Let material go as soon as it is engaged in the infeed rollers or chipping components.

25. Use a push stick at least 1.5 metre long, for both short produce and for the last piece of produce to be chipped.

26. Do not put any part of your body (including hands or feet), into the infeed hopper while the machine is running.

27. Always follow the manufactures' instructions for dealing with blockages on the machine.

28. Keep the area of ground in front of the infeed hopper free from debris to prevent any tripping hazard.

29. Remove the engine start key when the machine is left unattended or when undertaking any maintenance.

FUELLING

30. Stop engine and, if necessary allow the machine to cool before refuelling.

31. Petrol vapour is invisible and can flow considerable distances from spillage or fuelling sites. Maintain a safe distance from any source of ignition at all times.

32. Store fuel to avoid vapour ignition from any source such as fires, people smoking or the wood chipper. Select a site shaded from direct sunlight and away from watercourses and drains.

33. Containers must be clearly labelled and have securely fitting caps. Plastic containers must be designed and approved for use with petrol or diesel fuel.

34. Replace the fuel cap securely.

35. Keep fuel from contacting the skin. If fuel gets into the eyes wash out with sterile water immediately and seek medical advise

Maintenance

36. Ensure the machine is carried out in accordance with the manufacture's handbook.

37. Check chipping components and knives each day for damage and wear.

38. Wear gloves when handling knives.

39. Before working on knives, confirm that the engine is switched off, the start key removed, and the chipping component is stationary.

40. Before opening any guard/cover or reaching into the infeed hopper or discharge chutes make sure that the engine is switched off, start key removed and dangerous parts have come to a stand still.

41. Knives must be changed or reversed if damaged or blunt. Knives must be scrapped when worn to the minimum size specified by the manufacturer.

42. When new/sharpened knives are fitted, ensure that there is the recommended clearance between the knives and the anvil.

MOVING THE MACHINE

43. Stop the engine and remove the start/stop key.

44. Lock the chipping components.

45. Secure the infeed hopper and the chip discharge chute in the transport position.

46. Check the towing bracket, attach, then lift and secure the jockey wheel.

47. Connect the electrics and the safety chain/s to the towing vehicle.

48. Ensure that the load is secure and that people are in a safe position before moving off.

For further leaflets and reading see HSE web site:

www.hse.gov.uk

Further HSE Reading

Mechanical roadside processing AFAG605
Emergency planning AFAG802
Training and certification AFAG805
First aid at work:
Your questions answered INDG214
Managing health and safety
In forestry INDG294
Protect your hearing or lose it! INDG363

Further reading Continued

Power-fed mobile wood chippers:
Operator protection at infeed chute AIS38
Power take-offs and power take-off drive shafts AS24

Risk Assessment

Assessment No: R015-1

GreenMech
A Turner Company

Company Name: **GreenMech Ltd**

Activity: Quad Chip 150

Hazard	At Risk	Consequence (C)		Likelihood (L)		Risk Score	Controls	Revised		Final Risk Score
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
ENTANGLEMENT With cutter in base of CHIPPER infeed chute	OPERATOR	FATALITY – LOSS OF LIMB	5	VERY LIKELY	5	25	Reach area safety distance to cutter complies to latest HSE guidelines. Fix safety stop rail to lower perimeter on infeed chute. Operation of this emergency stop system should operate as recommended by HSE. Only appointed operators to use machine (competent)	5	2	10
STABBING AND PUNCTURE by projectiles from cutter. Wood, stones, nails rebound back out of infeed chute	OPERATOR	Injuries to face, eyes, head and hands	3	QUITE POSSIBLE	4	12	Trained Operator. Check only green waste is fed into machine. Safety helmet to BSEN 397 Forestry visor Hard wearing gloves	3	2	6

Key:

Consequence	Score	Likelihood	Score	To find risk Score multiply consequence rating by the likelihood rating
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required.
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	Final revised likelihood score must be 2 or less
Noticeable (first aid)	1	Improbable	1	

Signed: .....

Date: .....

Review Date: .....

Risk Assessment

Assessment No: R015-2

GreenMech
A Turner Company

Company Name: **GreenMech Ltd**

Activity: Quad Chip 150

Hazard	At Risk	Consequence (C)		Likelihood (L)		Risk Score	Controls	Revised		Final Risk Score
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
NOISE	OPERATOR	LOSS OF HEARING	4	QUITE POSSIBLE	4	16	Wear hearing protection to BS EN 352-3.	4	2	8
VIBRATION – movement of machine	OPERATOR	BROKEN OR BRUISED LIMB	3	POSSIBLE	3	9	Trained Operator. Lock off handbrake Chock wheels Stand machine on sound, level ground	3	2	6
STABBING – PUNCTURE When operating handle to raise engine – residue from exhaust chute	OPERATOR THIRD PARTY	EYE INJURIES CUTS TO FACE	2	POSSIBLE	3	6	Cordon off collection point. Operator to wear head and face protection	2	1	2

Key:

Consequence	Score	Likelihood	Score	To find risk Score multiply consequence rating by the likelihood rating
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: ……

Date: ……

Review Date: ……

Risk Assessment

Assessment No: R015-3

GreenMech
A Turner Company

Company Name: **GreenMech Ltd**

Activity: Quad Chip 150

Hazard	At Risk	Consequence (C)		Likelihood (L)		Risk Score	Controls	Revised		Final Risk Score
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
ENTANGLEMENT Branches with clothing	OPERATOR	Drawn into cutters – FATALITY – LOSS OF LIMB	5	POSSIBLE	3	15	Wear snug fitting clothes. No ties, scarves etc. Same controls as for previous hazard of entanglement with cutters. Wear gloves with long cuffs which can be tucked into sleeves	5	2	10
STABBING AND PUNCTURE – Processed green waste	OPERATOR THIRD PARTY	EYE INJURIES, CUTS TO FACE	1	POSSIBLE	3	3	Trained operator Lock off exhaust chute Cordon off collection point	1	1	2
STABBING AND PUNCTURE – Handling branches	OPERATOR	CUTS TO HANDS	2	QUITE POSSIBLE	4	8	Wear hard wearing gloves with long cuffs that can be tucked into sleeves.	2	2	4

Key:

Consequence	Score	Likelihood	Score	To find risk Score multiply consequence rating by the likelihood rating
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: ……

Date: ……

Review Date: ……

Risk Assessment

Assessment No: R015-4

GreenMech
A Turner Company

Company Name: **GreenMech Ltd**

Activity: Quad Chip 150

Hazard	At Risk	Consequence (C)		Likelihood (L)		Risk Score	Controls	Revised		Final Risk Score
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
IMPACT Being struck by branch when feeding green waste into cutters	OPERATOR	BROKEN LIMB BRUISES	3	POSSIBLE	3	9	Stand at side of machine. Trained operator	3	2	6
CRUSH Adjusting height of A-frame	OPERATOR	BROKEN LIMB, BRUISES	3	POSSIBLE	3	9	Ensure hand brake is applied and wheels are chocked. Support front of engine section with jack, or similar	3	1	3
ENTANGLEMENT Unguarded end of cutter spindle.	OPERATOR	LOSS OF FINGERS	3	POSSIBLE	3	9	Cover end of spindle with fixed guard.	3	1	3

Key:

Consequence	Score	Likelihood	Score	To find risk Score multiply consequence rating by the likelihood rating
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: ……

Date: ……

Review Date: ……

Risk Assessment

Assessment No: R015-5

GreenMech
A Turner Company

Company Name: **GreenMech Ltd**

Activity: Quad Chip 150

Hazard	At Risk	Consequence (C)		Likelihood (L)		Risk Score	Controls	Revised		Final Risk Score
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
IMPACT Struck by rotating machine during 20 degree turn	OPERATOR THIRD PARTY	Broken bones, bruises.	3	REMOTELY POSSIBLE	2	6	Cordon off area. Restrict access. Trained operator.	3	1	3
CUTTING Sharp corners on wheel cover, when rotated from locked position.	OPERATOR THIRD PARTY	Cuts and bruises to legs.	2	POSSIBLE	3	6	As above. Position bollards or similar adjacent to sharp corners.	2	1	2

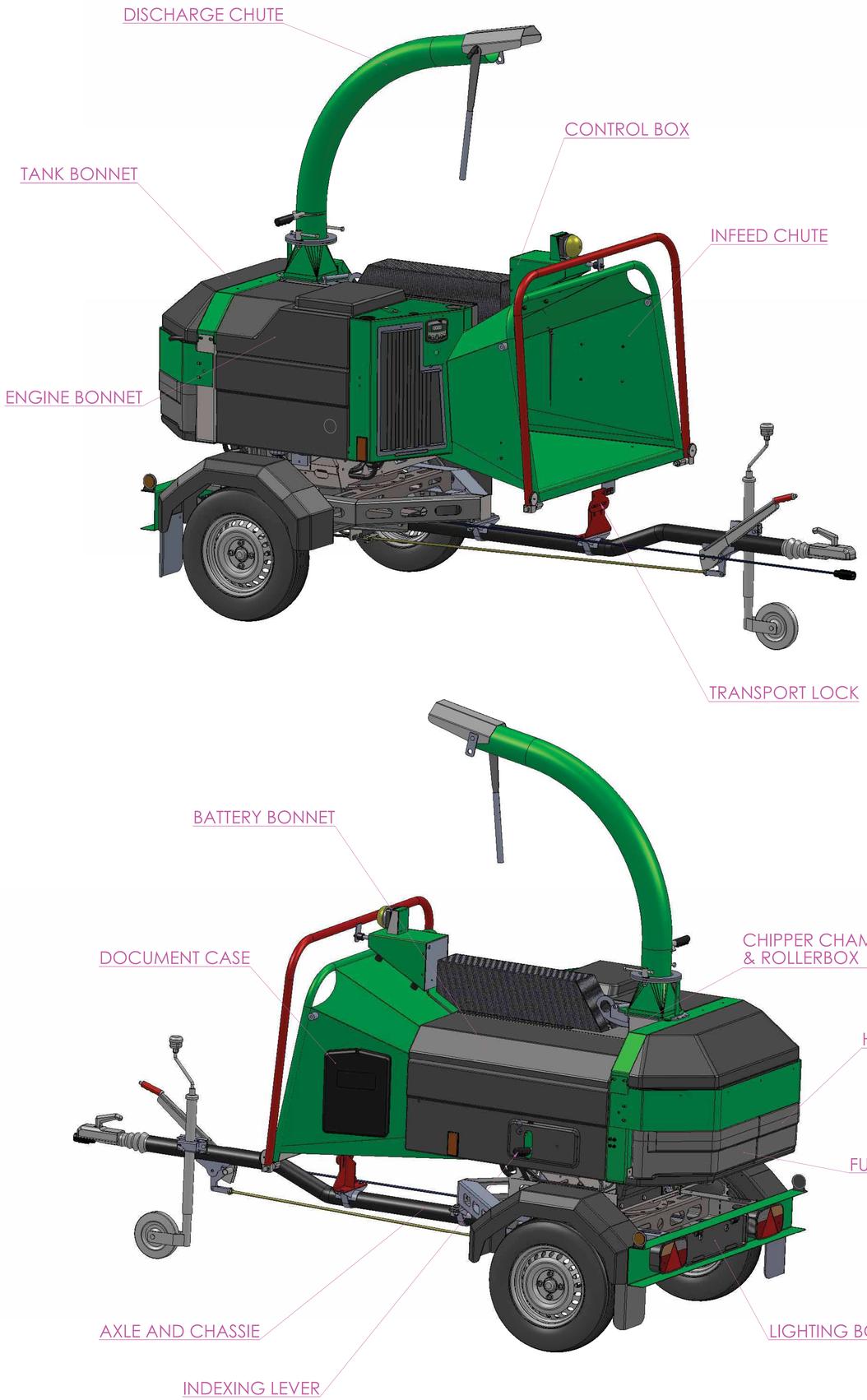
Key:

Consequence	Score	Likelihood	Score	To find risk Score multiply consequence rating by the likelihood rating
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: .....

Date: .....

Review Date: .....



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QC160

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INDEXING LEVER	4	FUEL & EXHAUST SYSTEM	22-24
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Item No	No Off	Description	Part No	Material

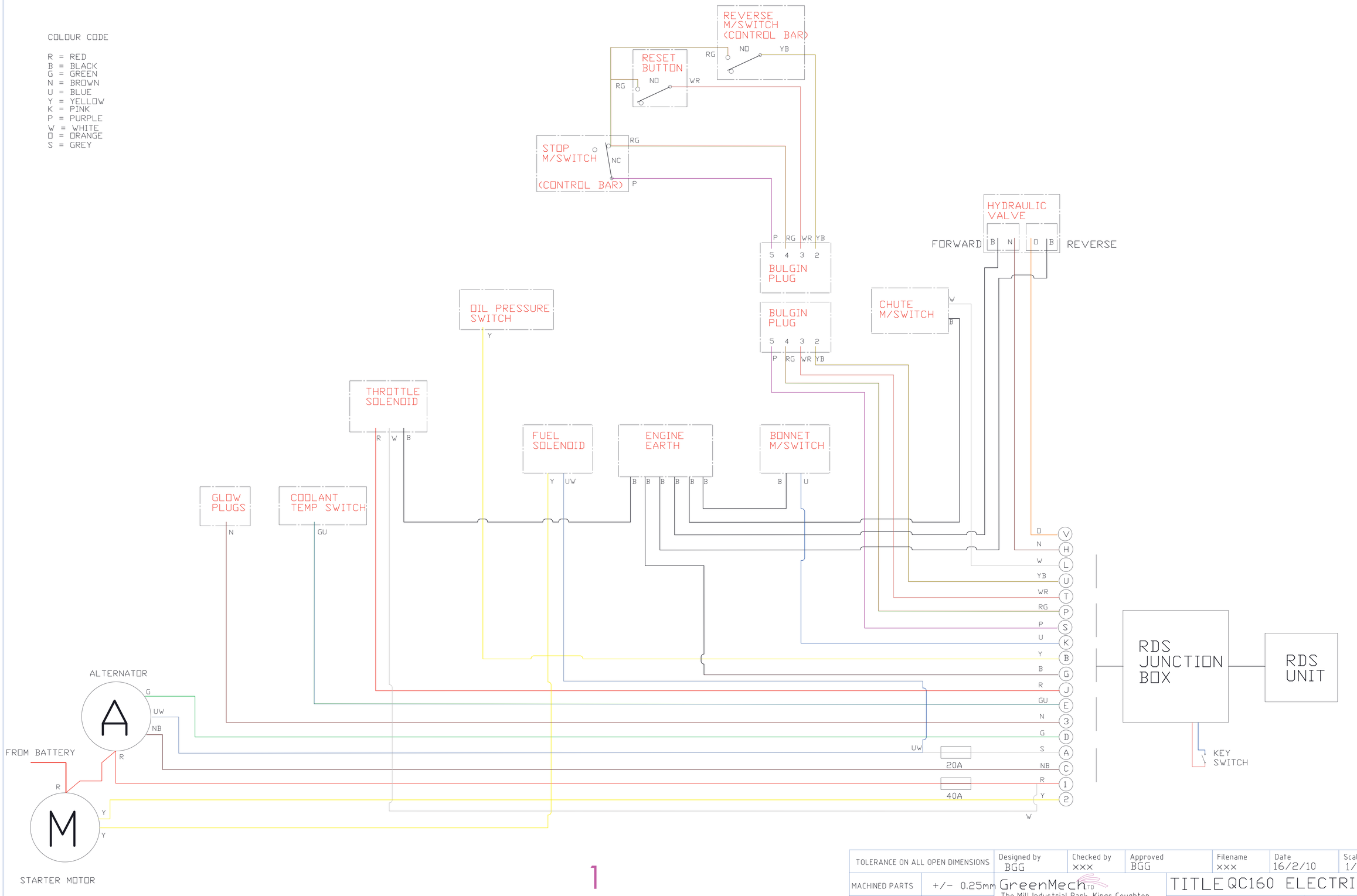
DO NOT SCALE - IF IN DOUBT ASK

THIS DRAWING IS 1ST ANGLE PROJECTION

DIMENSIONS IN MILLIMETERS

COLOUR CODE

R = RED
B = BLACK
G = GREEN
N = BROWN
U = BLUE
Y = YELLOW
K = PINK
P = PURPLE
W = WHITE
O = ORANGE
S = GREY



Issue	Modifications	Date	Sig	Chkd

1

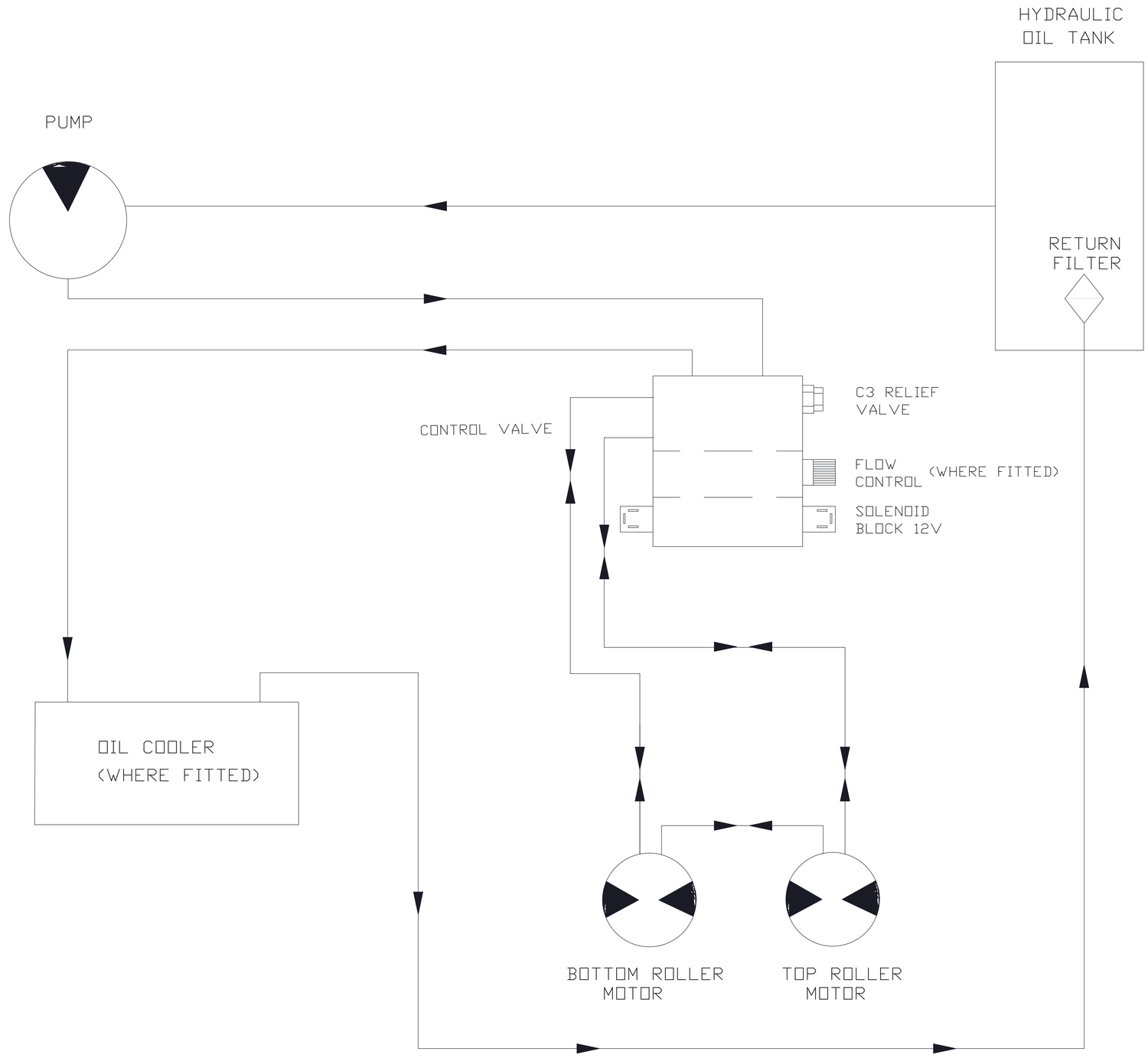
TOLERANCE ON ALL OPEN DIMENSIONS		Designed by	Checked by	Approved	Filename	Date	Scale
		BGG	xxx	BGG	xxx	16/2/10	1/1
MACHINED PARTS	+/- 0.25mm	GreenMech LTD The Mill Industrial Park, Kings Coughton Alcester,Warks B49 5QG Phone 01789 400044		TITLE QC160 ELECTRICAL			
FABRICATED PARTS	+/- 1.0mm			PART NO		Issue A	Sheet 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



2

REV	MODIFICATION	DRAWN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH: xxxxxxxxxx

	NAME	SIGNATURE	DATE
DRAWN	BGG		2/12/10
CHK'D			
APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/- 0.025mm
FABRICATED PARTS +/- 1.0mm

GreenMech Ltd
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

MATERIAL:

TITLE:
QC160 HYDRAULIC CIRCUIT

WEIGHT:

DWG NO.

A1

SCALE:1:1

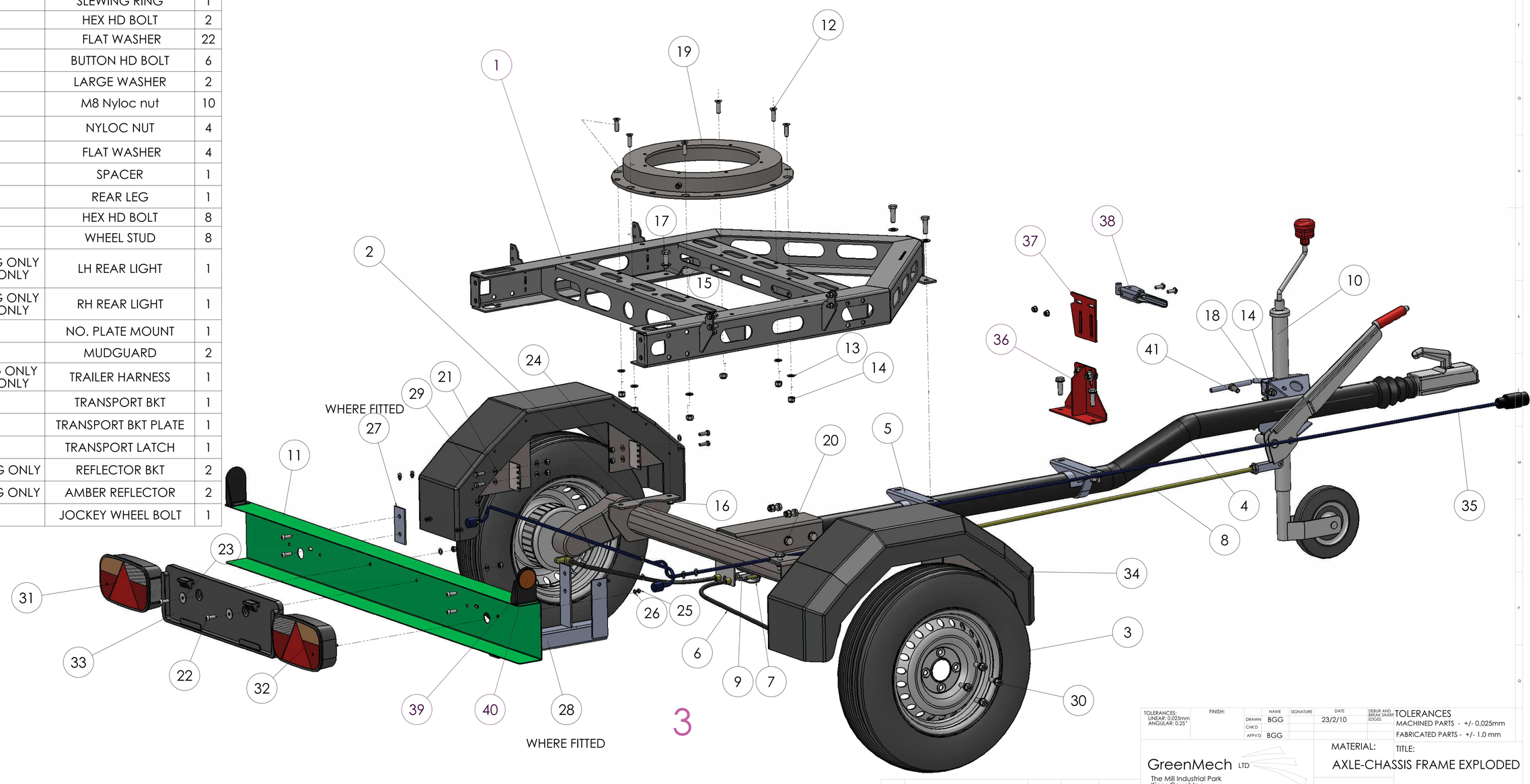
SHEET 1 OF 1

ITEM NO.	PART NUMBER	DESCRIPTION	QUANTITY.
1	QC160-1-1	QUAD-CHIP TRAILER FRAME	1
2	QC160-1-1016	ALKO AXLE	1
3	QC160-1-1023	WHEEL AND TYRE	2
4	QC160-1-1001L	ALKO T-POLE	1
5	QC160-1-1020	T-POLE CLAMP	1
6	QC160-1-1021	BRAKE CABLE	1
7	QC160-1-1018	COMPENSATOR	1
8	QC160-1-1017L	HAND BRAKE ROD	1
9	QC160-1-1019	COMPENSATOR NUT	1
10	QC160-1-1022	JOCKEY WHEEL	1
11	QC160-1-10	LIGHTBOARD	1
12	81035	C/SUNK HD BOLT	6
13	91002	M10 B WASHER	14
14	91001	NYLOC NUT	10
15	91202	FLAT WASHER	14
16	91201	M12 NYLOC	10
17	91240	HEX HD BOLT	6
18	91030	HEX HD BOLT	4
19	QC160-1-1002N	SLEWING RING	1
20	912120	HEX HD BOLT	2
21	90802	FLAT WASHER	22
22	60825	BUTTON HD BOLT	6
23	90802-R	LARGE WASHER	2
24	90801-Nyloc	M8 Nyloc nut	10
25	90601-Nyloc	NYLOC NUT	4
26	90602	FLAT WASHER	4
27	QC160-1-62	SPACER	1
28	QC160-1-67	REAR LEG	1
29	90825	HEX HD BOLT	8
30	QC160-1-1024	WHEEL STUD	8
31	GM-1002-TLA 13 PIN PLUG ONLY EC1928462 7 PIN PLUG ONLY	LH REAR LIGHT	1
32	GM-1001-TLA 13 PIN PLUG ONLY EC1928463 7 PIN PLUG ONLY	RH REAR LIGHT	1
33	EC1928464	NO. PLATE MOUNT	1
34	EC150019	MUDGUARD	2
35	GM-1003-TLL 13 PIN PLUG ONLY EC1928465 7 PIN PLUG ONLY	TRAILER HARNESS	1
36	QC160-4-23MK2	TRANSPORT BKT	1
37	QC160-4-35MK2	TRANSPORT BKT PLATE	1
38	QC160-4-1010	TRANSPORT LATCH	1
39	QC160-1-96-3 13 PIN PLUG ONLY	REFLECTOR BKT	2
40	GM-1001-RYR 13 PIN PLUG ONLY	AMBER REFLECTOR	2
41	QC160-1-71	JOCKEY WHEEL BOLT	1

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



3

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°	FINISH:		NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
		DRAWN	BGG		23/2/10	
		CHK'D				
		APPV'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:
AXLE-CHASSIS FRAME EXPLODED

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

SCALE:1:20 SHEET 1 OF 1

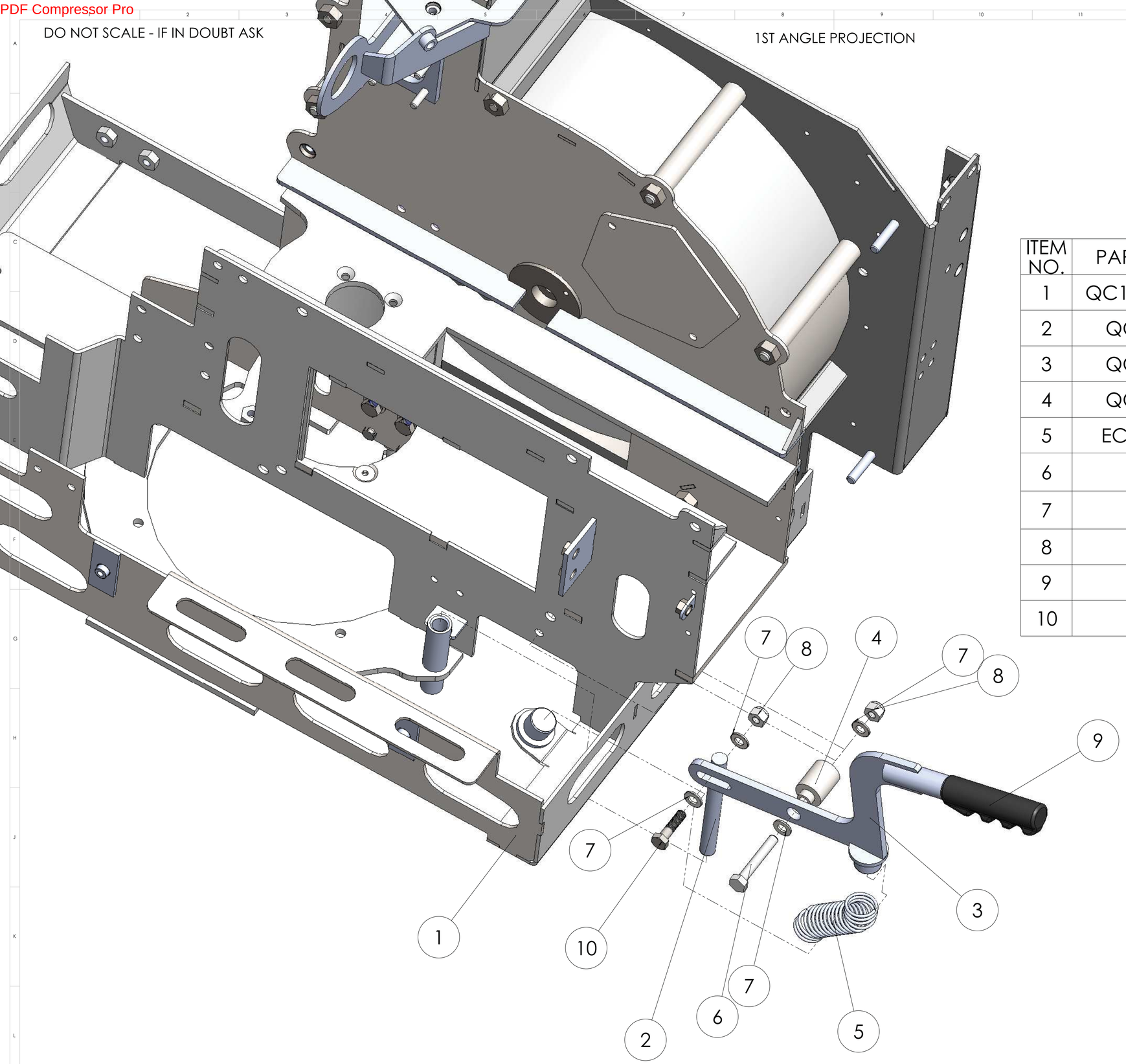
REV	MODIFICATION	DRN	APPRD	DATE

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-1-11MK2	TURNTABLE WELD ASSY	1
2	QC160-1-44	INDEX PIN	1
3	QC160-1-46	INDEXING LEVER	1
4	QC160-1-43	INDEX ARM PIVOT	1
5	EC1928116-2	TURNTABLE LEVER SPRING	1
6	91065	M10 X 60 BOLT	1
7	91002	M10 B WASHER	4
8	91001	NYLOC NUT	2
9	9227	PLASTIC HANDLE GRIP	1
10	91040	M10 x 40BOLT	1

4

REV	MODIFICATION	DRAWN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH: xxxxxxxxxx

	NAME	SIGNATURE	DATE
DRAWN	BGG		12/8/10
CHK'D			
APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/- 0.025mm
FABRICATED PARTS +/- 1.0mm

GreenMech Ltd
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

MATERIAL:

TITLE:
INDEXING LEVER EXPLODE

WEIGHT:

DWG NO.

A1

SCALE:1:5

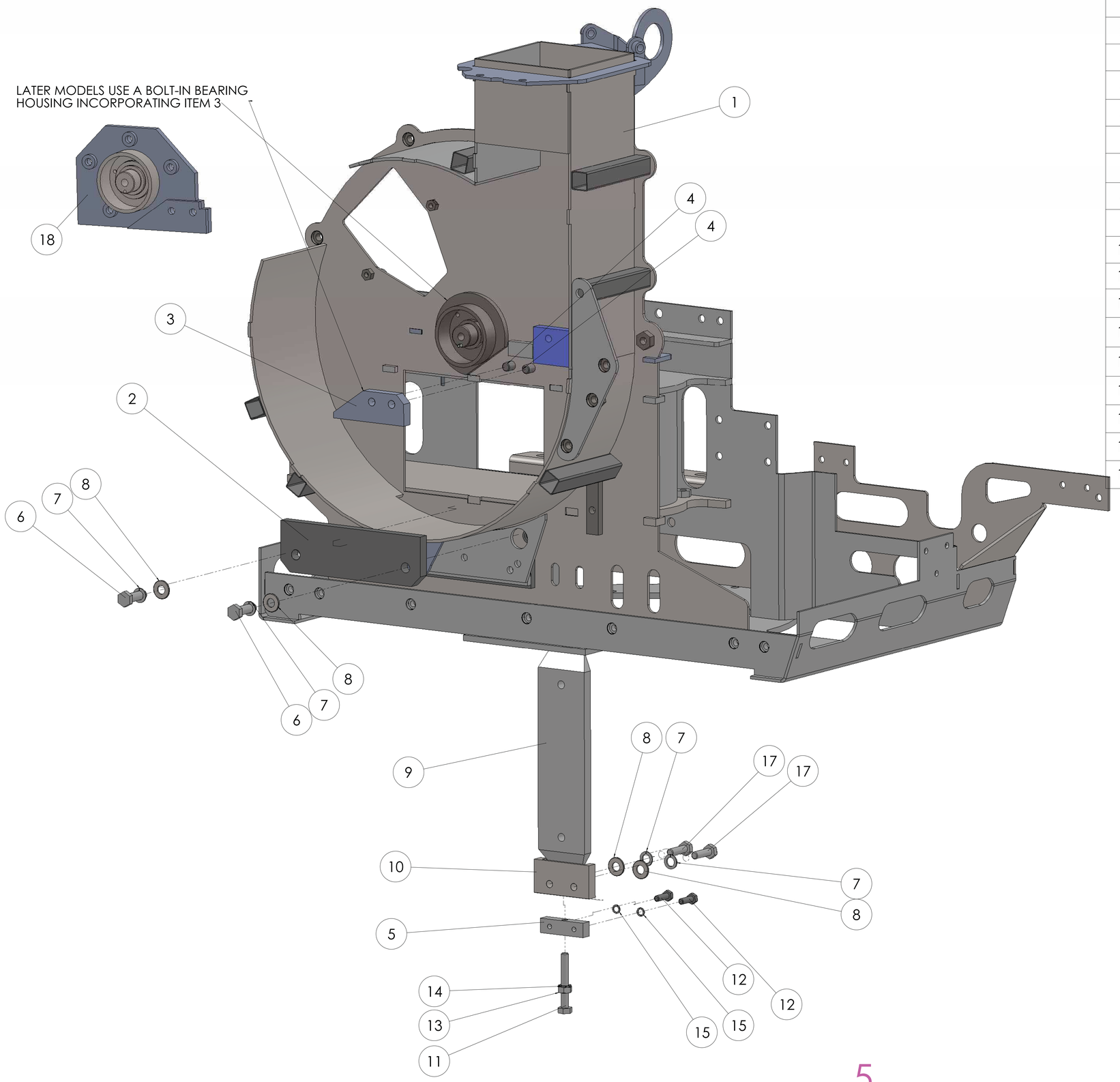
SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-1-11MK2	CHIPPER CHAMBER/ROLLERBOX	1
2	EC130-2-27	HORIZONTAL SHEARBAR	1
3	QC160-2-41	TOP SHEARBAR SEGMENT	1
4	91220	HEX HEAD BOLT	2
5	CM170-2-37	SHEARBAR LOCK	1
6	91240	HEX HD BOLT	2
7	91203	SPRING WASHER	4
8	91202	FLAT WASHER	4
9	EC35-2-43	VERTICAL SHEARBAR	1
10	CM170-2-32	SHEARBAR CLAMP	1
11	91075	HEX HEAD BOLT	1
12	90825	HEX HD BOLT	2
13	91001=P	PLAIN NUT	1
14	91004	SHAKEPROOF WASHER	1
15	90804	HEX HEAD BOLT	2
16	91204S	STARLOCK WASHER	2
17	91035	M10 x 35mm	2
18	QC160-2-8MK3	BEARING HOUSING	1

5

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
DRAWN	BGG		26/4/10	
CHK'D				
APPV'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:
SHEARBARS EXPLODED

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

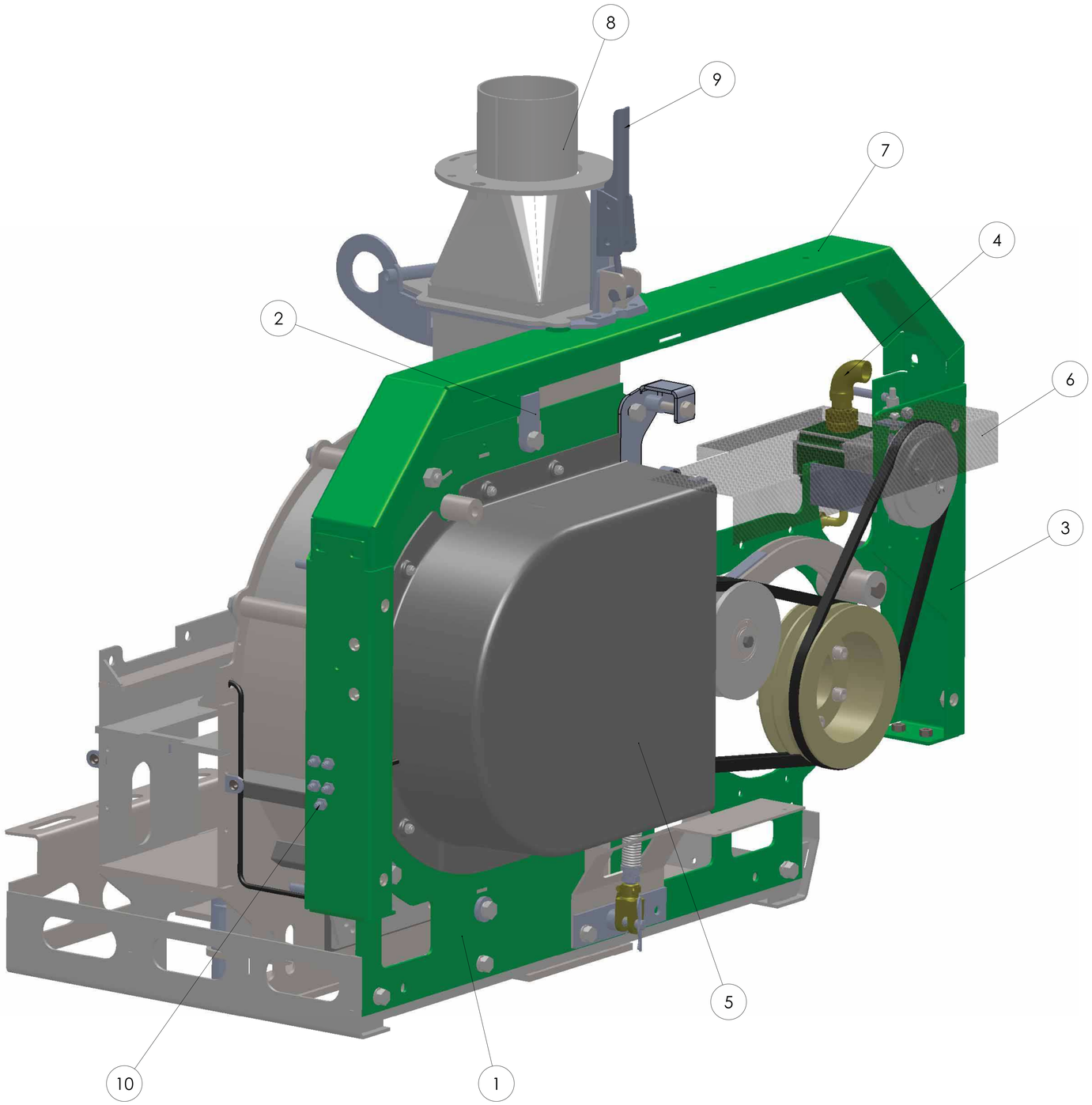
SCALE:1:10 SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-2-18	C/CFRONT PLATE FAB	1
2	QC160-2-61	CLAMP PLATE	1
3	QC160-6-1	EMGINE PLATE WELD ASSY	1
4	QC160-6-9001	HYDRAULIC PUMP ASSY	1
5	QC160-1-1010	PLASTIC FAN COWL	1
6	QC160-6-92	DRIVE GUARD	1
7	QC160-1-37	UPPER HOOP WELD ASSY	1
8	QC160-2-26	SQUARE TO ROUND FAB	1
9	QC160-4-1010	TRANSPORT LATCH	1
10	EC151037	REMOTE GREASE NIPPLE	5

6

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		16/4/12
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

WEIGHT:

TITLE:

CHIPPER CHAMBER

DWG NO. A0

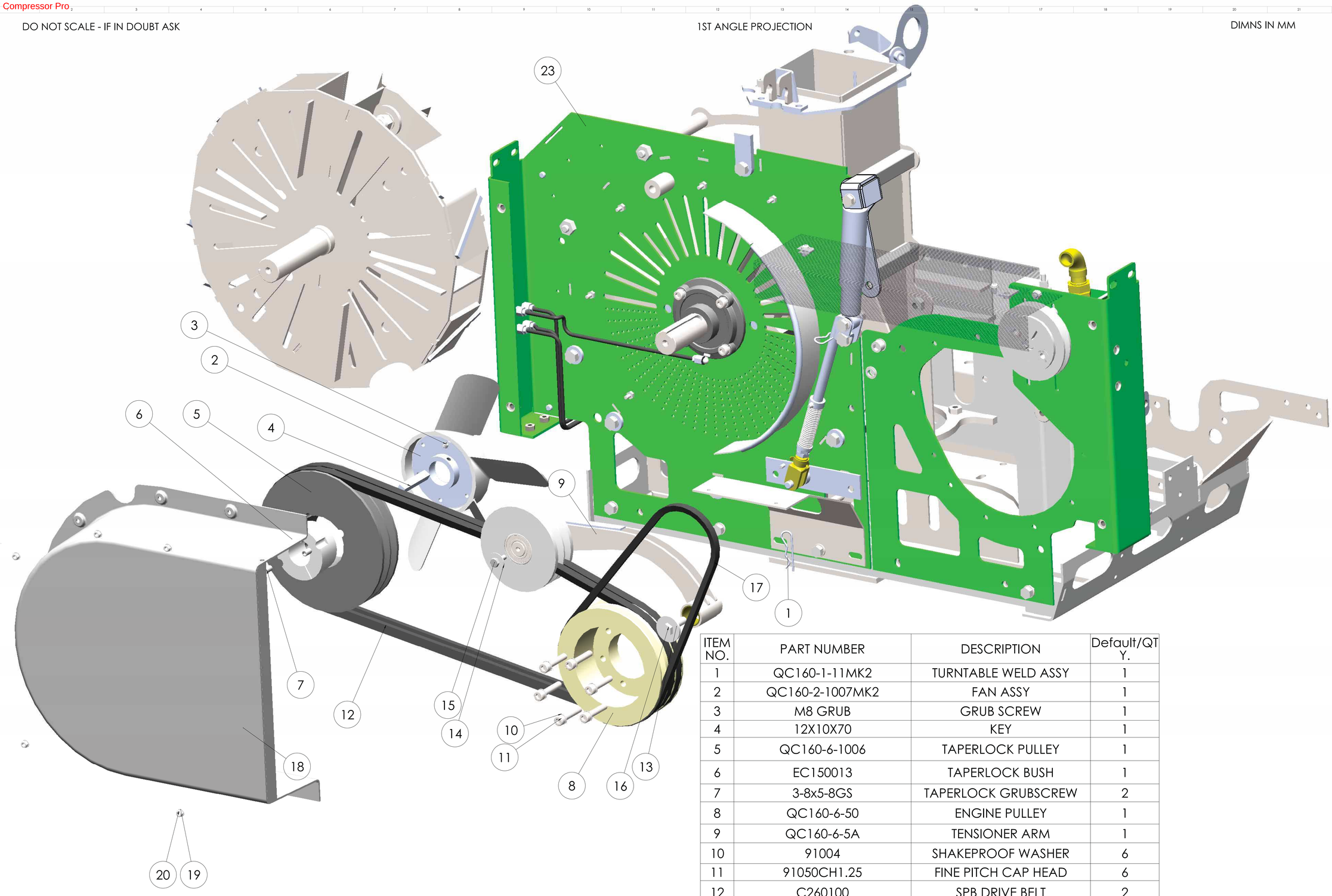
SCALE:1:5 SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.
1	QC160-1-11MK2	TURNTABLE WELD ASSY	1
2	QC160-2-1007MK2	FAN ASSY	1
3	M8 GRUB	GRUB SCREW	1
4	12X10X70	KEY	1
5	QC160-6-1006	TAPERLOCK PULLEY	1
6	EC150013	TAPERLOCK BUSH	1
7	3-8x5-8GS	TAPERLOCK GRUBSCREW	2
8	QC160-6-50	ENGINE PULLEY	1
9	QC160-6-5A	TENSIONER ARM	1
10	91004	SHAKEPROOF WASHER	6
11	91050CH1.25	FINE PITCH CAP HEAD	6
12	C260100	SPB DRIVE BELT	2
13	91202-R	M12 LARGE WASHER	1
14	90802-R	LARGE WASHER	1
15	90825	M8 HEX HD BOLT	1
16	91245	M12 HEX HD BOLT	1
17	QC160-6-1008	SPA DRIVE BELT	1
18	QC160-1-1010	PLASTIC FAN COWL	1
19	90602	M6 FLAT WASHER	6
20	90601	M6 NYLOC	6
23	QC160-2-18	C/CFRONT PLATE FAB	1

REV | MODIFICATION | DRN | APPRD | DATE

TOLERANCES LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
DRAWN	BGG		14/12/10	
CHK'D				
APPV'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

TITLE:
DRIVE GEAR EXPLODED

WEIGHT:

DWG NO. A0

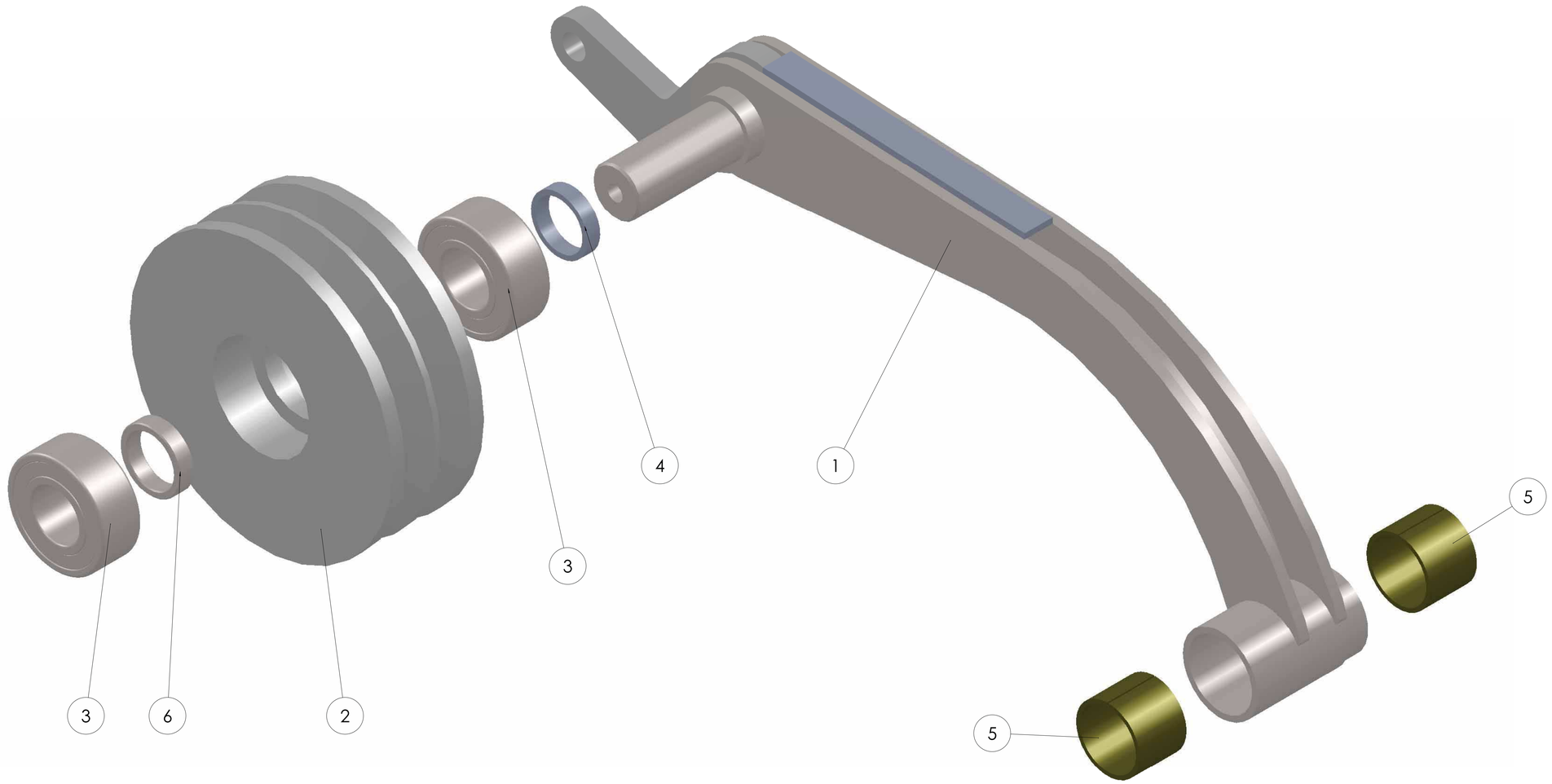
SCALE:1:10 SHEET 1 OF 4

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-6-5A	TENSIONER ARM-COMPLETE WITH ITEM 5	1
2	QC160-6-1021A	IDLER PULLEY-COMPLETE WITH ITEMS 3/4/6	1
3	C252121	3205ZZ BEARING	2
4	QC160-6-90	PULLEY SPACER	1
5	QC160-6-1024	BRONZE BUSH	2
6	QC160-6-94	SPACER	1

8

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
DRAWN	BGG		14/12/10	
CHK'D				
APPV'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

WEIGHT:

TITLE:
TENSIONER ARM EXPLODED

DWG NO. A0

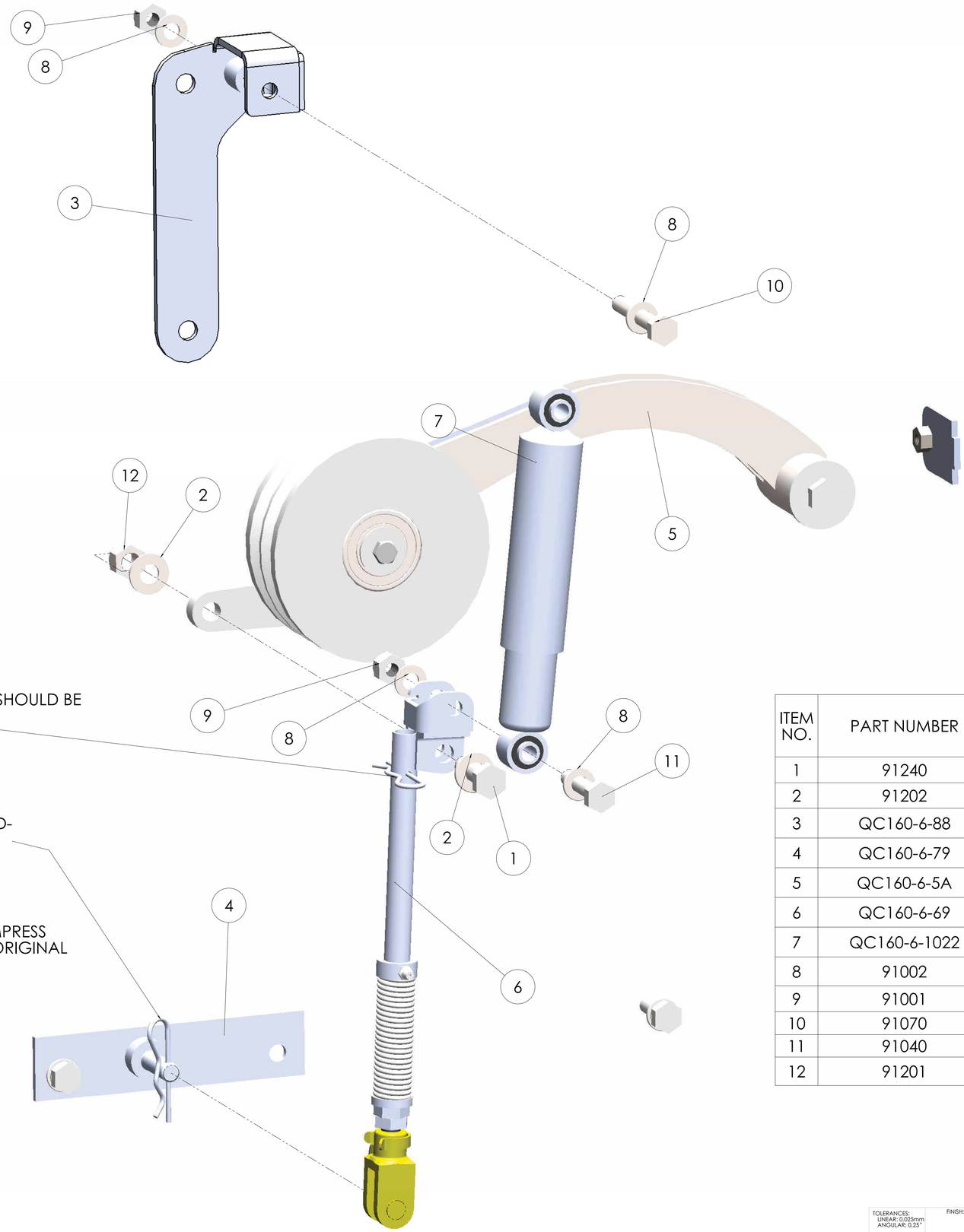
SCALE:1:2 SHEET 2 OF 4

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



WHEN FITTING TENSIONER -R CLIP SHOULD BE FITTED AS SHOWN

WHEN TENSIONER HAS BEEN FITTED- PULL OUT R CLIP AND FIT HERE

WHEN DETENSIONING BELTS-COMPRESS TENSIONER AND REFIT R CLIP TO ORIGINAL POSITION

ITEM NO.	PART NUMBER	DESCRIPTION	FLYWHEEL EXPLODED/QTY.
1	91240	HEX HD BOLT	1
2	91202	FLAT WASHER	2
3	QC160-6-88	DAMPER TOP MOUNT	1
4	QC160-6-79	TENSIONER MOUNT	1
5	QC160-6-5A	TENSIONER ARM	1
6	QC160-6-69	TENSIONER COMPRESSED	1
7	QC160-6-1022	DAMPER	1
8	91002	M10 B WASHER	4
9	91001	M10 NYLOC NUT	2
10	91070	HEX HD BOLT	1
11	91040	M10 BOLT	1
12	91201	M12 NYLOC	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		14/12/10
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

WEIGHT:

TITLE:
TENSIONER SYSTEM EXPLODED

DWG NO.

A0

SCALE:1:5

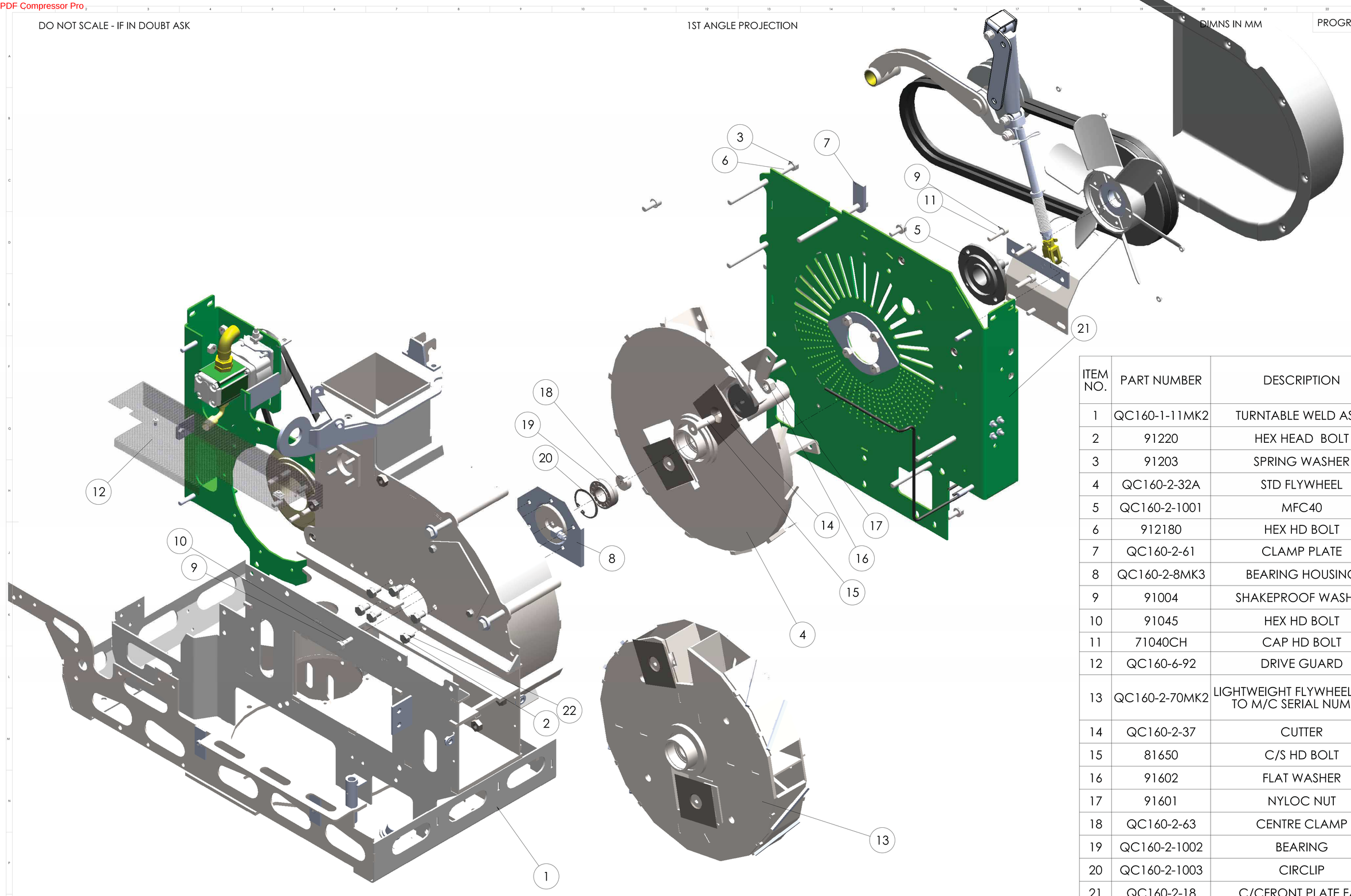
SHEET 3 OF 4

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	FLYWHEEL EXPLODED/QTY.
1	QC160-1-11MK2	TURNTABLE WELD ASSY	1
2	91220	HEX HEAD BOLT	6
3	91203	SPRING WASHER	11
4	QC160-2-32A	STD FLYWHEEL	1
5	QC160-2-1001	MFC40	1
6	912180	HEX HD BOLT	8
7	QC160-2-61	CLAMP PLATE	1
8	QC160-2-8MK3	BEARING HOUSING	1
9	91004	SHAKEPROOF WASHER	11
10	91045	HEX HD BOLT	1
11	71040CH	CAP HD BOLT	4
12	QC160-6-92	DRIVE GUARD	1
13	QC160-2-70MK2	LIGHTWEIGHT FLYWHEEL REFER TO M/C SERIAL NUMBER	1
14	QC160-2-37	CUTTER	2
15	81650	C/S HD BOLT	2
16	91602	FLAT WASHER	2
17	91601	NYLOC NUT	2
18	QC160-2-63	CENTRE CLAMP	1
19	QC160-2-1002	BEARING	1
20	QC160-2-1003	CIRCLIP	1
21	QC160-2-18	C/CFRONT PLATE FAB	1
22	91204S	STARLOCK WASHER	6

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
DRAWN	BGG		14/12/10	
CHK'D				
APPV'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:
FLYWHEEL EXPLODED

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

SCALE:1:10 SHEET 4 OF 4

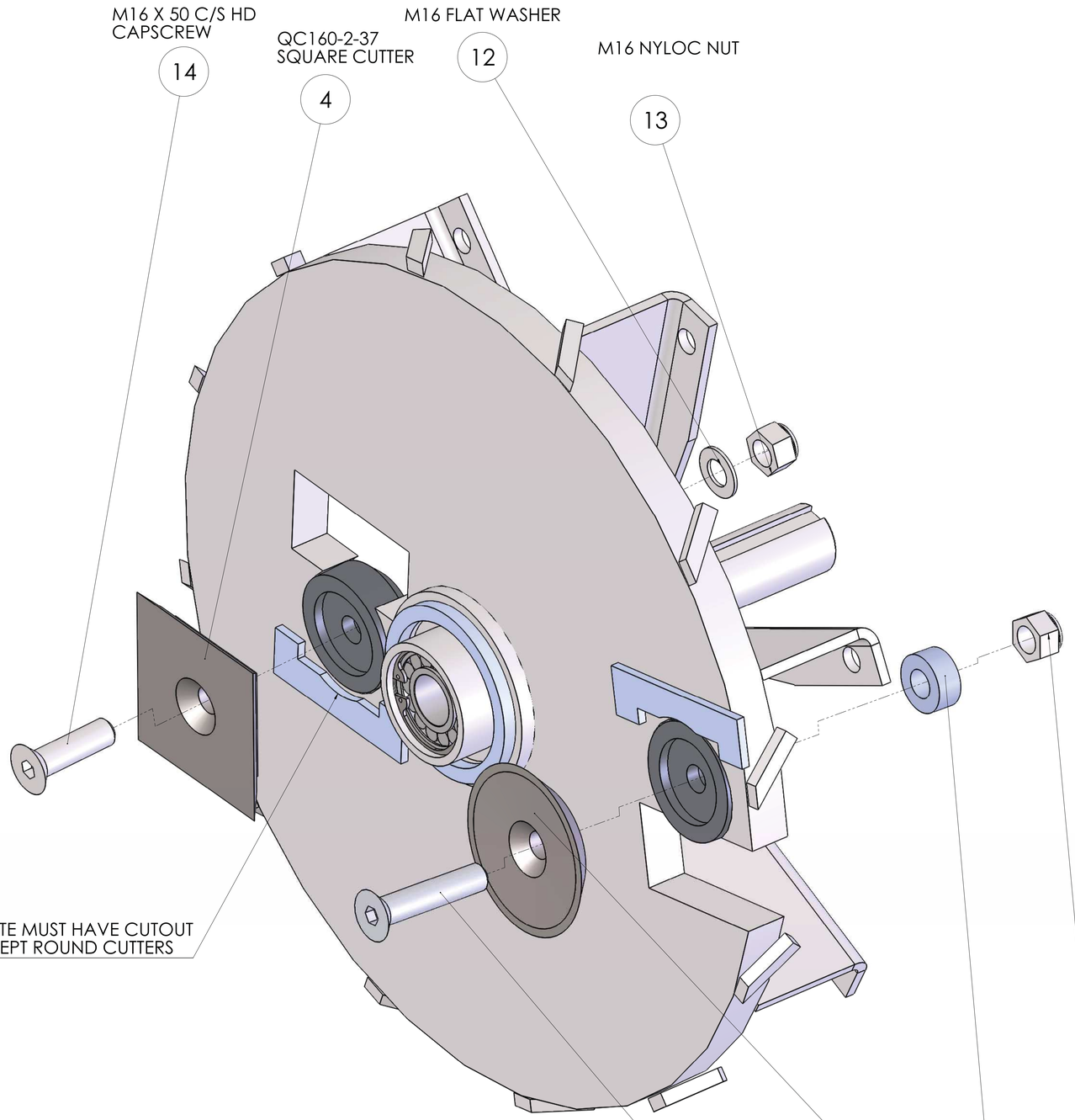
REV	MODIFICATION	DRN	APPRD	DATE

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



IMPORTANT

WHEN CONVERTING TO DISC BLADES FROM SQUARE BLADES, THE LONGER BOLT-ITEM 20 AND THE BALANCE WEIGHT-ITEM 21 MUST BE FITTED TO THE OUTER CUTTER AS SHOWN

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°
FINISH:
DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		XXXXXXXX
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

TITLE:
FLYWHEEL AND CUTTER TYPES

WEIGHT:

DWG NO. A0

SCALE:1:5 SHEET 1 OF 2

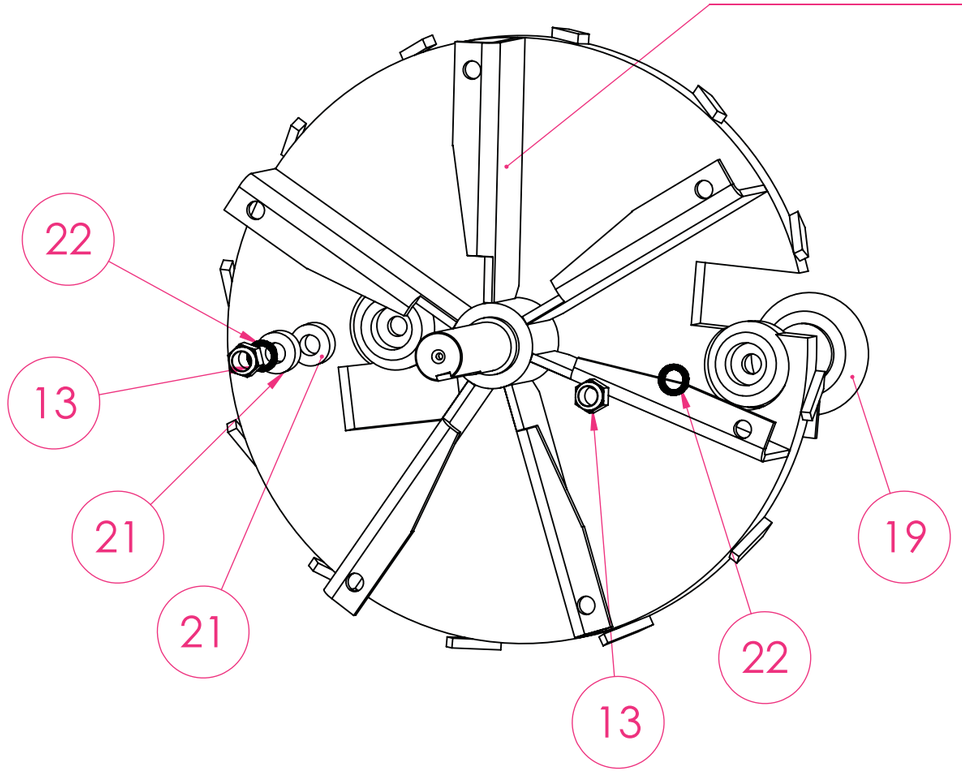
DO NOT SCALE - IF IN DOUBT ASK

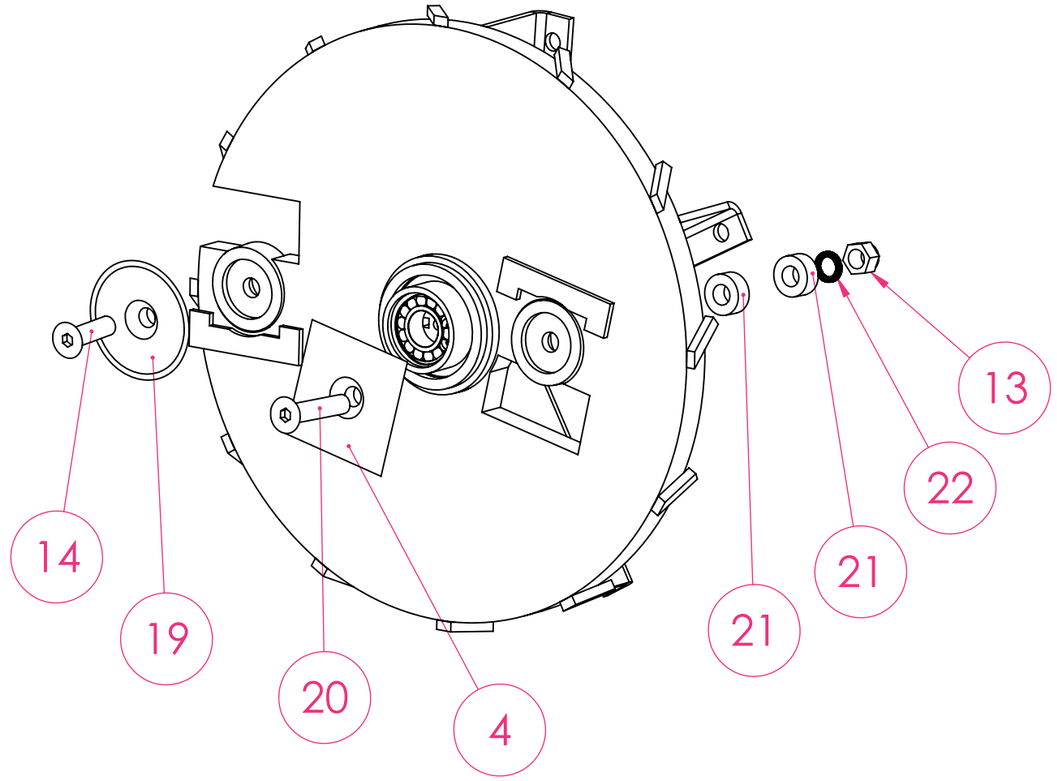
1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-

AS THIS CONFIGURATION
ON FLYWHEELS CODED: QR





ITEM No	PART NUMBER	DESCRIPTION	QTY
4	QC160-2-37	SQUARE CUTTER	2
13	91601H	NYLOC NUT (HALF)	2
14	81650	C/SK HD CAPSCREW	1
19	C202503	ROUND CUTTER	2
20	81680	C/SK HD CAPSCREW	1
21	QC160-2-92	BALANCE WEIGHT	2
22	91607	NORLOCK WASHER	2

IMPORTANT
WHEN USING SQUARE CUTTERS
2 BALANCE WEIGHTS ARE REQD ON INSIDE CUTTER
TORQUE TO 200Nm

12

REV	MODIFICATION	DRN	APPD	DATE

TOLERANCES:
LINEAR: 0.025MM
ANGULAR: 0.25°

FINISH:

	NAME	QUANTITY	DATE
DRAWN	RVMR		22/05/2013
CHK'D			
APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/- 0.025mm
FABRICATED PARTS +/-1.0mm

GreenMech Ltd

The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

Material & Thickness

TITLE:
New cutter configuration

Weight:

DWG NO.
FLYWHEEL AND CUTTER TYPES

A3

SCALE:1:5

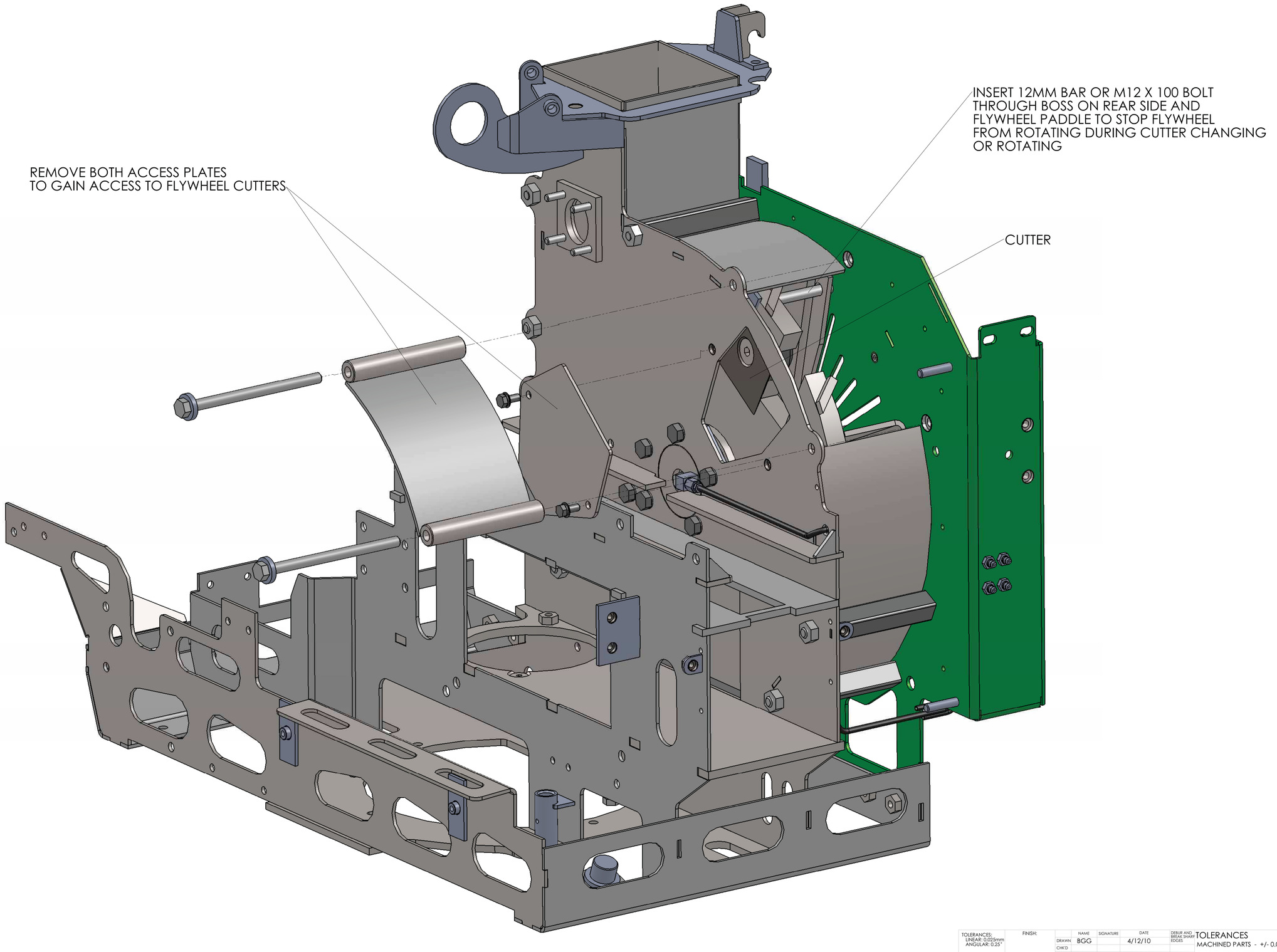
SHEET 2 OF 2

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°	FINISH:		NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
		DRAWN	BGG		4/12/10	
		CHK'D				
		APPV'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:
CUTTER CHANGING
EXPLODED

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

SCALE:1:5 SHEET 1 OF 1

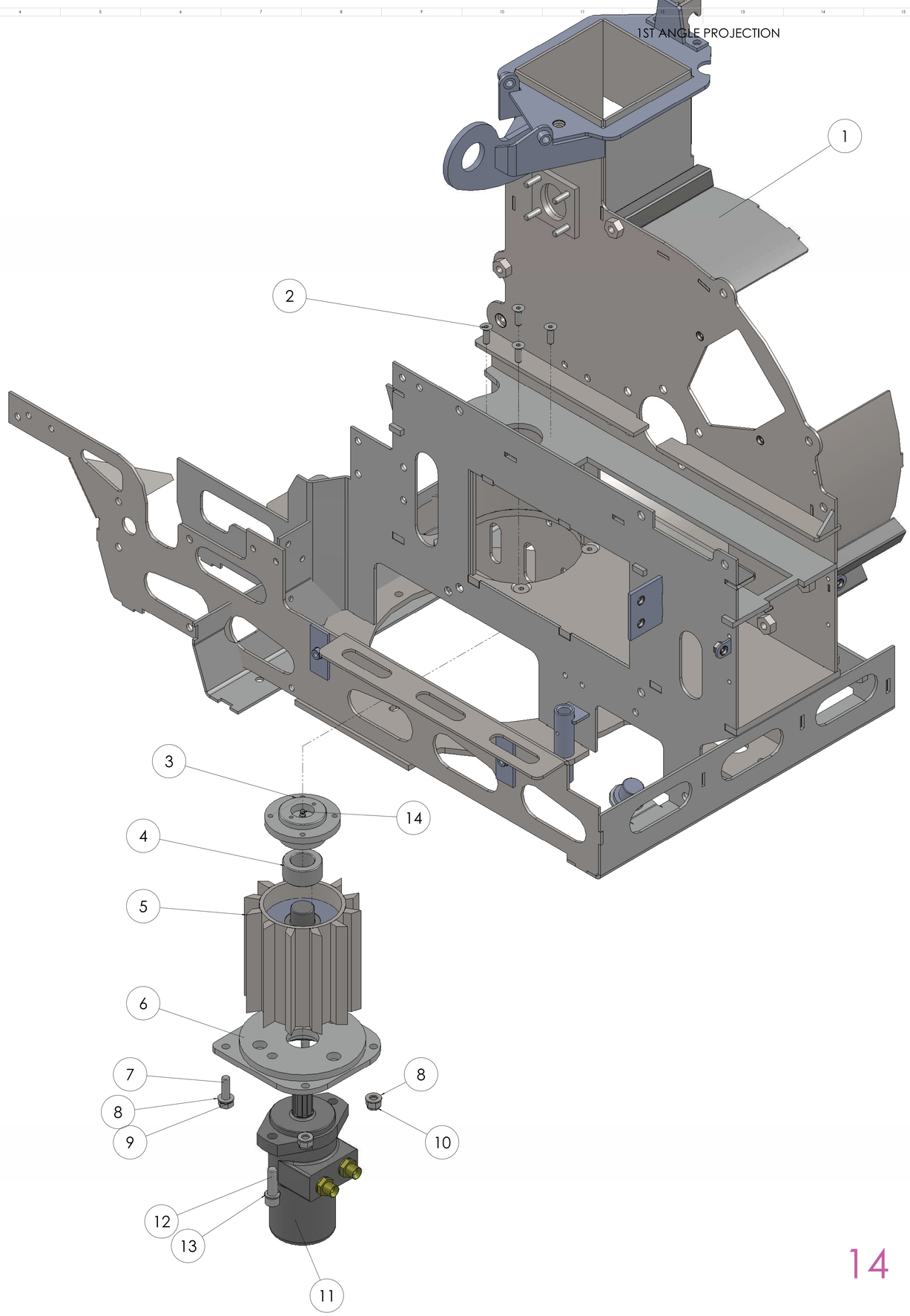
REV	MODIFICATION	DRN	APPRD	DATE

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-1-11MK2	TURNTABLE WELD ASSY	1
2	80825CS	M8 CS HD BOLT	4
3	QC160-3-40	BUSH HOUSING	1
4	QC160-3 41	NYLON BUSH	1
5	QC160-3-32	EARLY FIXED ROLLER	1
6	QC160-3-11	MOTOR PLATE	1
7	91035	HEX HD BOLT	2
8	91002	FLAT WASHER	4
9	91003	SPRING WASHER	2
10	91001	NYLOC NUT	2
11	C200207-1	HYD. MOTOR	1
12	71240	M12 CAP HD	2
13	91203	SPRING WASHER	2
14	GNS 500	GREASE NIPPLE	1

14

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		27/7/10
CHK'D			
APPV'D	BGG		

TOLERANCES

MACHINED PARTS - +/- 0.025mm

FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:

EARLY TYPE FIXED ROLLER

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

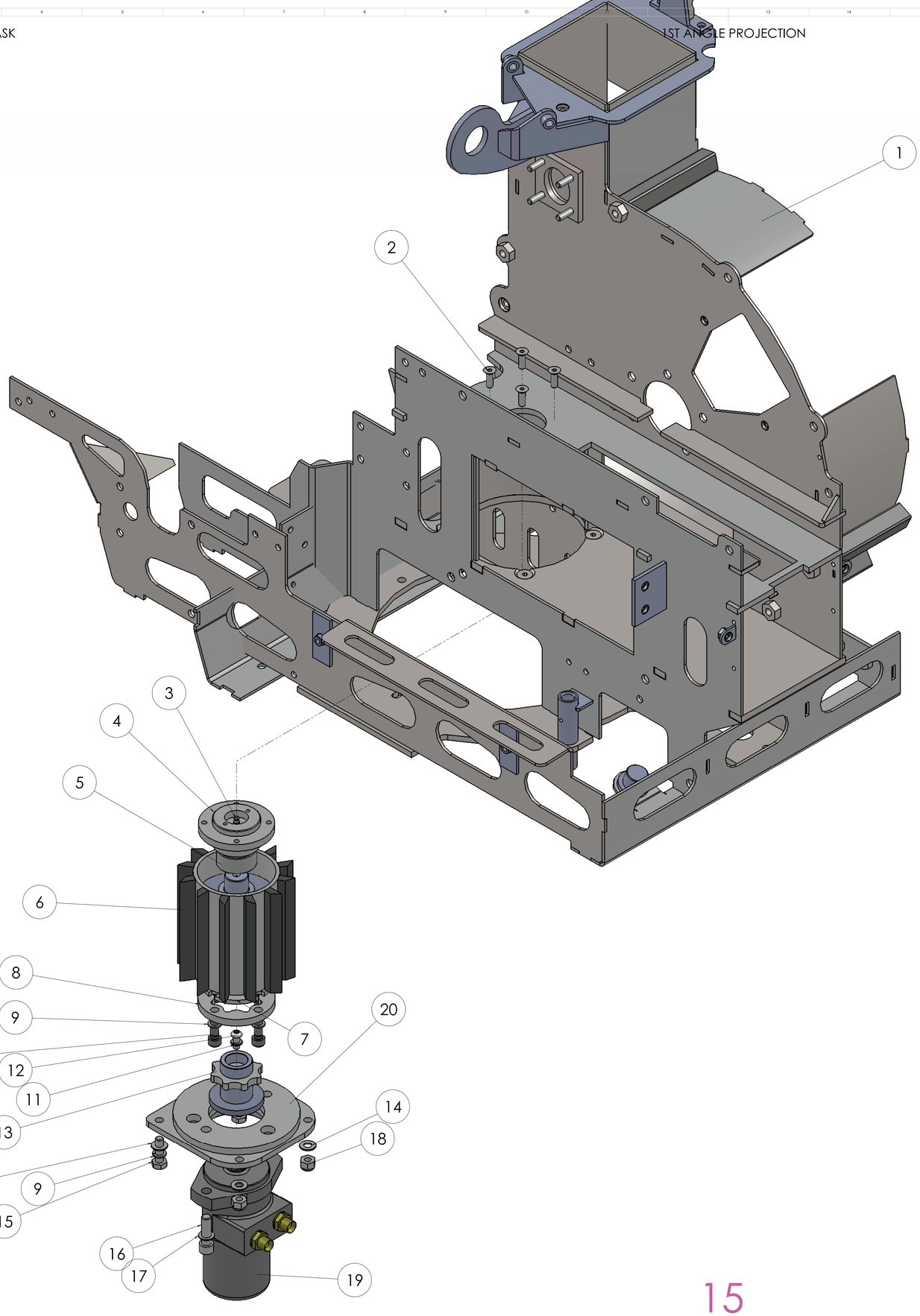
SCALE:1:5 SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-1-11MK2	TURNTABLE WELD ASSY	1
2	80825	C/S HD CAPSCREW	4
3	GNS500	GREASE NIPPLE	1
4	QC160-3-40	BUSH HOUSING	1
5	QC160-3-41	NYLON BUSH	1
6	QC160-3-32MK2	LATER FIXED ROLLER	1
7	QC160-3-58	SPACER	1
8	QC160-3-60	DRIVE PLATE	1
9	91003	SPRING WASHER	6
10	71030	CAP HD BOLT	4
11	90803	SPRING WASHER	1
12	60820	BUTTON HD BOLT	1
13	QC160-3-57	DRIVE SPLINE	1
14	91002	FLAT WASHER	4
15	91035	HEX HD BOLT	2
16	71240	CAP HD BOLT	2
17	91203	SPRING WASHER	2
18	91001	NYLOC NUT	2
19	C200207-1	HYD MOTOR	1
20	QC160-3-11	MOTOR PLATE	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		28/7/10
CHK'D			
APPV'D	BGG		

MATERIAL:

WEIGHT:

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

TITLE:
LATER TYPE
FIXED ROLLER

DWG NO. A0

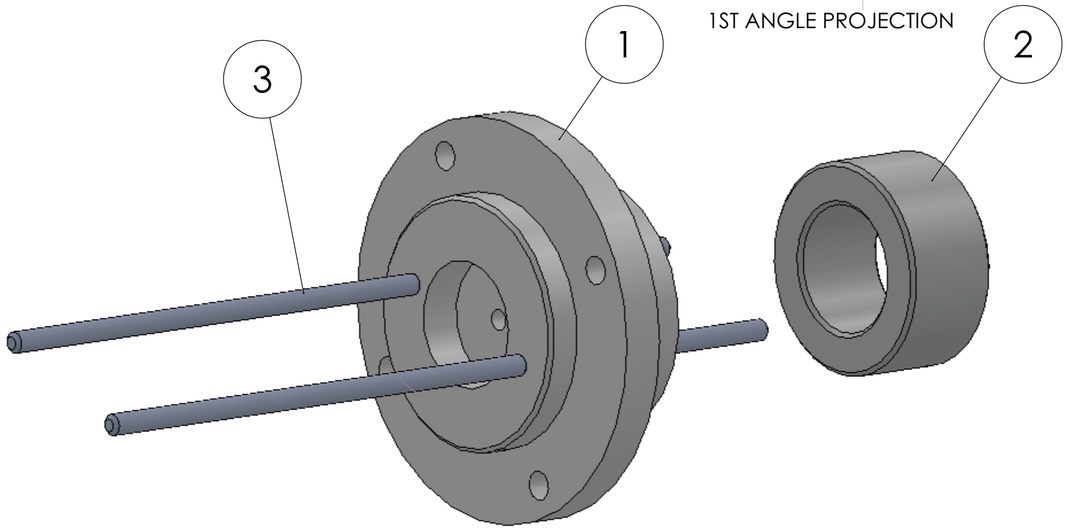
SCALE:1:10 SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

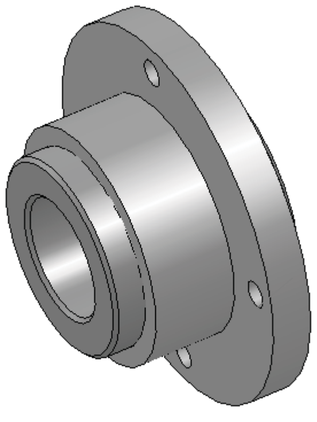
PROGRAM No:-



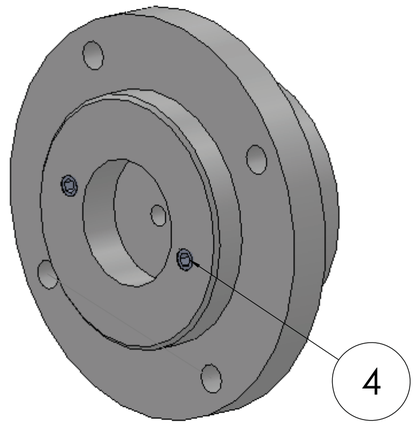
ITEM NO.	PART NUMBER	DESCRIPTION	Default/ QTY.
1	QC160-3-40	BUSH HOUSING	1
2	QC160-3-41	BUSH	1
3	5MM ROD	LOCATING ROD	2
4	40620	GRUBSCREW	2

1-
USE 2 5MM RODS TO LOCATE BUSH INTO HOUSING

2-
PRESS BUSH 2/3RDS INTO HOUSING AND REAM 30MM
-REMOVE DEBRIS



3-
PRESS BUSH FULLY INTO HOUSING AND FIT GRUBSCREW
FLUSH WITH TOP OF HOUSING



NOTE:5MM RODS CAN BE USED TOREMOVE
BUSH FROM HOUSING

REV	MODIFICATION	DRAWN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025MM
ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE
DRAWN	BGG		17/8/10
CHK'D			
APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/-0.025mm
FABRICATED PARTS +/-1.0mm

GreenMech Ltd

The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

MATERIAL:

TITLE:
FIXED ROLLER BUSH ASSY
LATER MODELS

WEIGHT:

DWG NO.

A2

SCALE:1:2

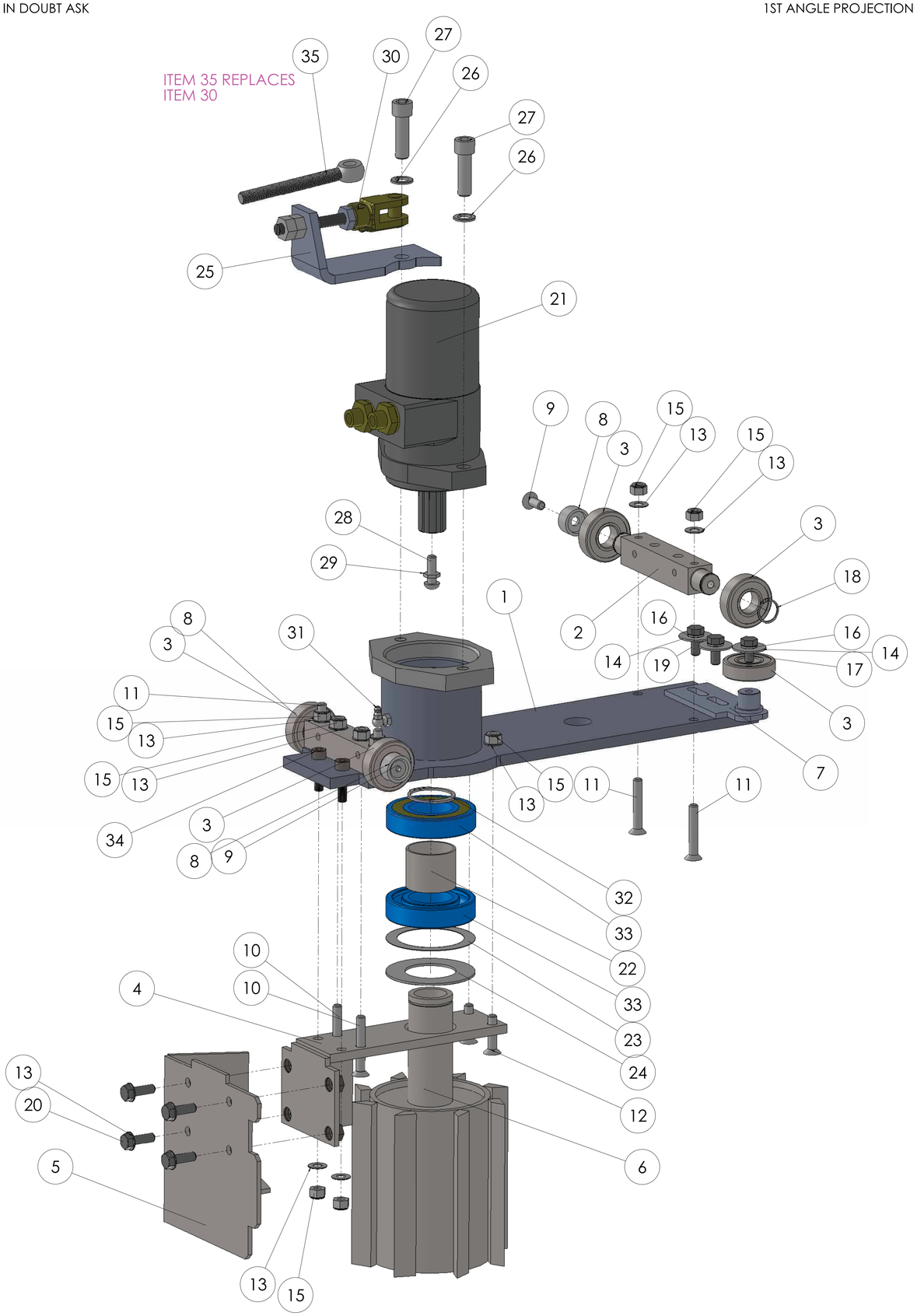
SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-3-15MK2	ROLLER SLIDE PLATE	1
2	QC160-3-19MK2	ROLLER AXLE	2
3	QC160-3-1002	BEARING (6204ZZ)	5
4	QC160-3-20MK2	GUIDE MTG PLATE	1
5	QC160-3-24	GUIDE FIXING PLATE	1
6	QC160-3-31	TOP ROLLER	1
7	QC160-3-44	GUIDE ROLLER BKT	1
8	QC160-3-43	NYLON ROLLER	3
9	80820	C/S HD BOLT	3
10	80855	C/S HD BOLT	2
11	80850	C/S HD BOLT	4
12	80835	C/S HD BOLT	2
13	90802	FLAT WASHER	14
14	90802-R	LARGE WASHER	3
15	90801	NYLOC NUT	10
16	90803	SPRING WASHER	3
17	90816	HEX HD BOLT	1
18	QC160-3-1003	20 EXT CIRCLIP	1
19	90820	HEX HD BOLT	2
20	90825	HEX HD BOLT	4
21	C200207-1	HYDRAULIC MOTOR	1
22	QC160-3-46	SPACER	1
23	EC130-3-36	SHIM	1
24	EC130-3-35	END PLATE	1
25	QC160-3-48	ANCHOR PLATE	1
26	91203	SPRING WASHER	2
27	71240	M12 CAP HD	2
28	60825	BUTTON HD BOLT	1
29	90801PT	M8 PLAIN THIN NUT	1
30	QC160-3-54	SPRING ADJUSTER	1
31	GNS690	GREASE NIPPLE	1
32	QC160-3-1004	40 EXT CIRCLIP	1
33	C252119	ROLLER BEARING 6208RS	2
34	70830	CH BOLT	2
35	QC160-1-1041	SWING BOLT	1

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
DRAWN	BGG		26/5/10	
CHK'D				
APP'V'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE: SLIDING ROLLER EXPLODED

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

SCALE:1:5 SHEET 1 OF 1

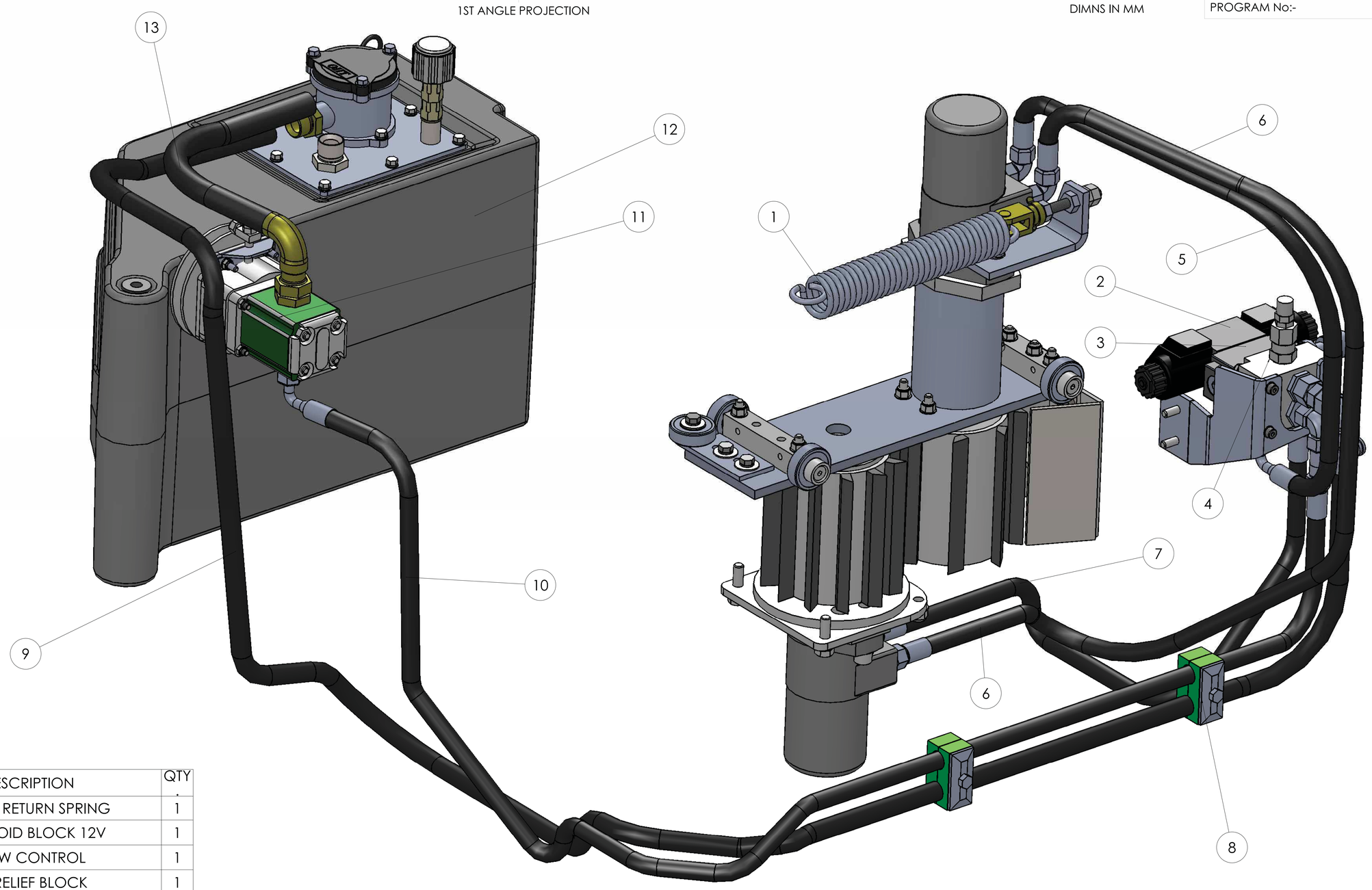
REV	MODIFICATION	DRN	APPRD	DATE

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-3-1001-1	ROLLER RETURN SPRING	1
2	QC160-6-9002	SOLENOID BLOCK 12V	1
3	QC169-6-9003	FLOW CONTROL	1
4	QC160-6-9004	C3 RELIEF BLOCK	1
5	QC160-6-9010	HYDRAULIC PIPE	1
6	QC160-6-9009	HYDRAULIC PIPE	1
7	QC160-6-9008	HYDRAULIC PIPE	1
8	QC160-6-9011	HOSE CLAMP	2
9	QC160-6-9007	HYDRAULIC RETURN PIPE	1
10	QC160-6-9006	HYDRAULIC FEED PIPE	1
11	QC160-6-9001	HYDRAULIC PUMP ASSY	1
12	QC160-1-1003-H	HYDRAULIC TANK	1
13	QC160-6-9005	HYDRAULIC SUCTION PIPE	1

EARLY MODELS WITHOUT OIL COOLER

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		XXXXXXXX
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:

HYDRAULIC LAYOUT

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

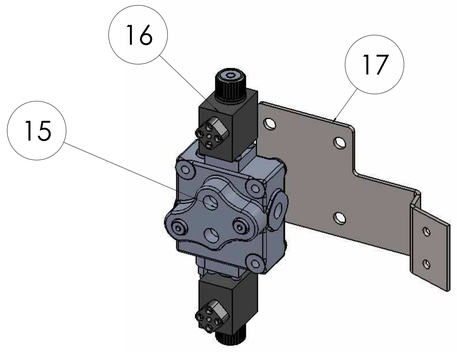
SCALE:1:5 SHEET 1 OF 1

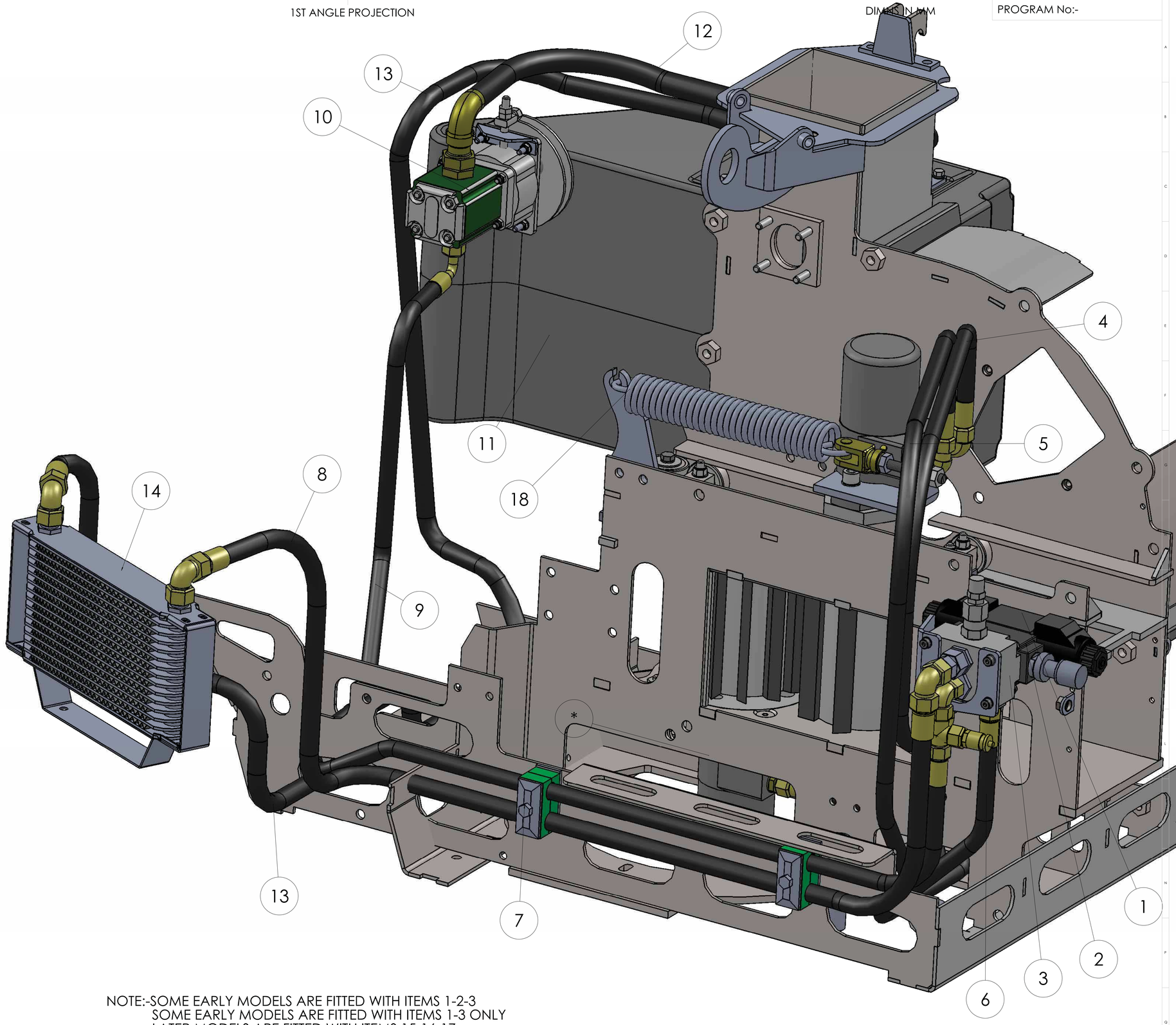
DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMS IN MM

PROGRAM No:-





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-6-9002	SOLENOID BLOCK 12V	1
2	QC160-6-9003	FLOW CONTROL	1
3	QC160-6-9004	C3 RELIEF BLOCK	1
4	QC160-6-9010	HYDRAULIC PIPE	1
5	QC160-6-9009	HYDRAULIC PIPE	1
6	QC160-6-9008	HYDRAULIC PIPE	1
7	QC160-6-9011	HOSE CLAMP	2
8	QC160-6-9007	HYDRAULIC RETURN PIPE	1
9	QC160-6-9006	HYDRAULIC FEED PIPE	1
10	QC160-6-9001	HYDRAULIC PUMP ASSY	1
11	QC160-1-1003-H	HYDRAULIC TANK	1
12	QC160-6-9005	HYDRAULIC SUCTION PIPE	1
13	QC160-6-9016	HYDRAULIC RETURN PIPE	1
14	QC160-6-9015	OIL COOLER	1
15	QC160-6-9017	ALTERNATIVE VALVE	1
16	QC160-6-9018	12VDC COIL	2
17	QC160-3-69	ALTERNATIVE BKT	1
18	QC160-3-1001-1	ROLLER RETURN SPRING	1

NOTE:-SOME EARLY MODELS ARE FITTED WITH ITEMS 1-2-3
SOME EARLY MODELS ARE FITTED WITH ITEMS 1-3 ONLY
LATER MODELS ARE FITTED WITH ITEMS 15-16-17

19

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°
FINISH:
DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		1/12/10
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

TITLE:
HYDRAULIC LAYOUT WITH OIL COOLER

WEIGHT:

DWG NO. A0

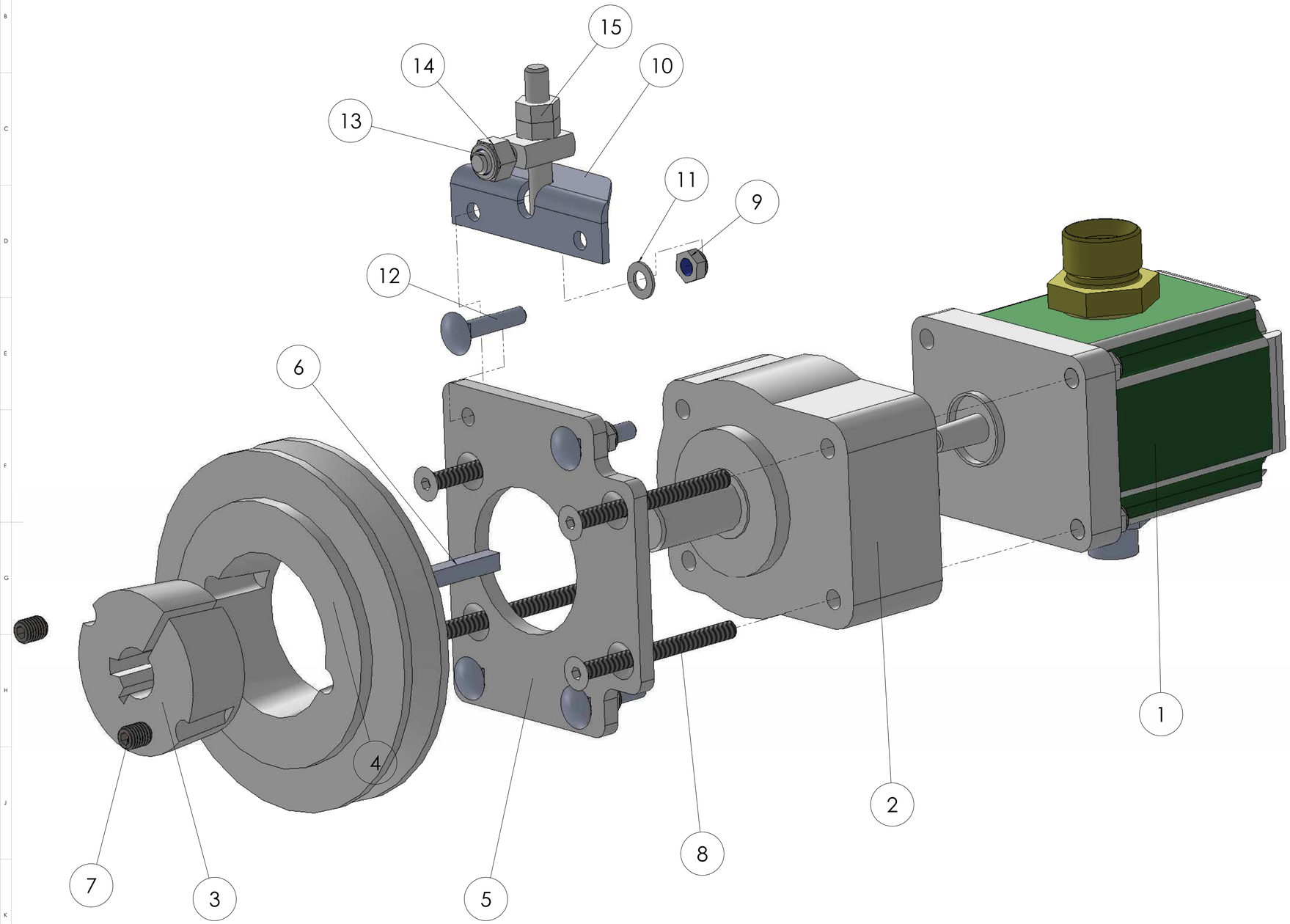
SCALE:1:5 SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-6-9001	PUMP	1
2	EC1523705	BEARING SUPPORT	1
3	TMP220612	TL BUSH	1
4	QC160-6-9005	PULLEY	1
5	QC160-6-12	PUMP PLATE	1
6	6 X30	KEY	1
7	951610	GRUB SCREW	2
8	80670	M6 x 70mm C/SUNK	4
9	90601-Nyloc	NYLOC NUT	8
10	QC160-6-60	PUMP ADJUSTER	1
11	90602	FLAT WASHER	4
12	90630CB	COACHBOLT	4
13	TC220215	CLEVIS	1
14	90801-Nyloc	M8 Nyloc nut	1
15	90801P	M8 PLAIN NUT	2

20

REV	MODIFICATION	DRAWN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH: xxxxxxxxxx

	NAME	SIGNATURE	DATE
DRAWN	BGG		6/8/10
CHK'D			
APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/- 0.025mm
FABRICATED PARTS +/- 1.0mm

GreenMech Ltd
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

MATERIAL:

TITLE:
HYDRAULIC PUMP ASSY

WEIGHT:

DWG NO.
QC160-6-9001 EXPLODED

SCALE:1:5

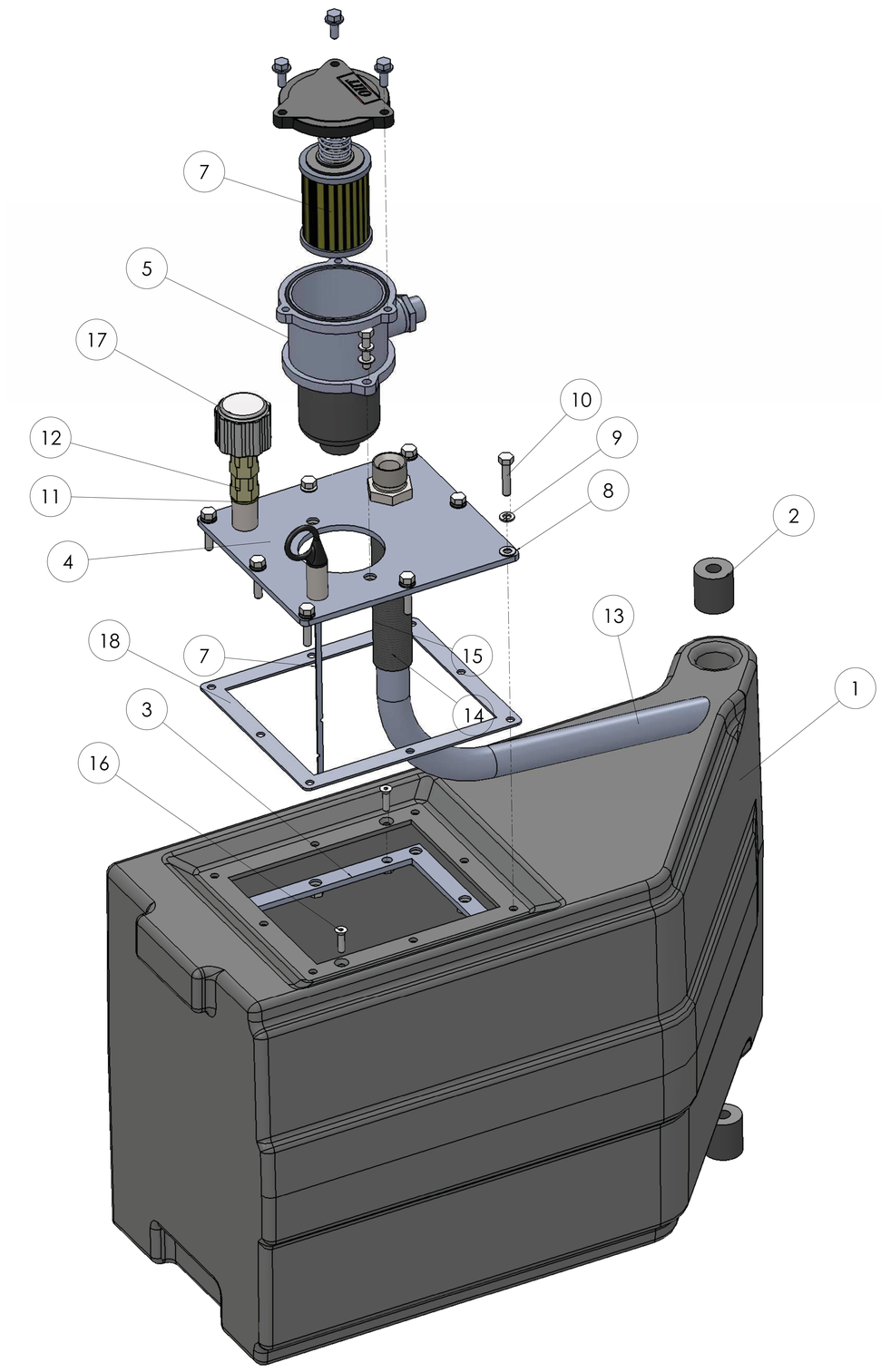
SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-1-1003-H	HYDRAULIC TANK	1
2	QC160-1-1011	MOUNTING BUSH	2
3	QC160-1-26	TANK CLAMP PLATE	1
4	QC160-1-28	HYD TANK PLATE	1
5	EC151029	OIL RETURN FILTER	1
6	EC151029/1	FILTER ELEMENT	1
7	QC160-1-1026	DIPSTICK	1
8	90602	FLAT WASHER	10
9	90603	M6 S/WASHER	10
10	90630	HEX HD BOLT	10
11	QC160-6-9013	BONDED WASHER	1
12	QC160-6-9014	EXTENSION BUSH	2
13	QC160-1-61	OIL PIPE	1
14	27031	HOSE CLIP	2
15	QC160-6-9012	RUBBER PIPE	1
16	80520	C/SUNK HD BOLT	2
17	ST1928-1-150	UCC TANK BREATHER	1
18	QC160-9-1016	TANK GASKET	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
DRAWN	BGG		6/8/10	
CHK'D				
APPV'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:
HYDRAULIC TANK EXPLODED

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

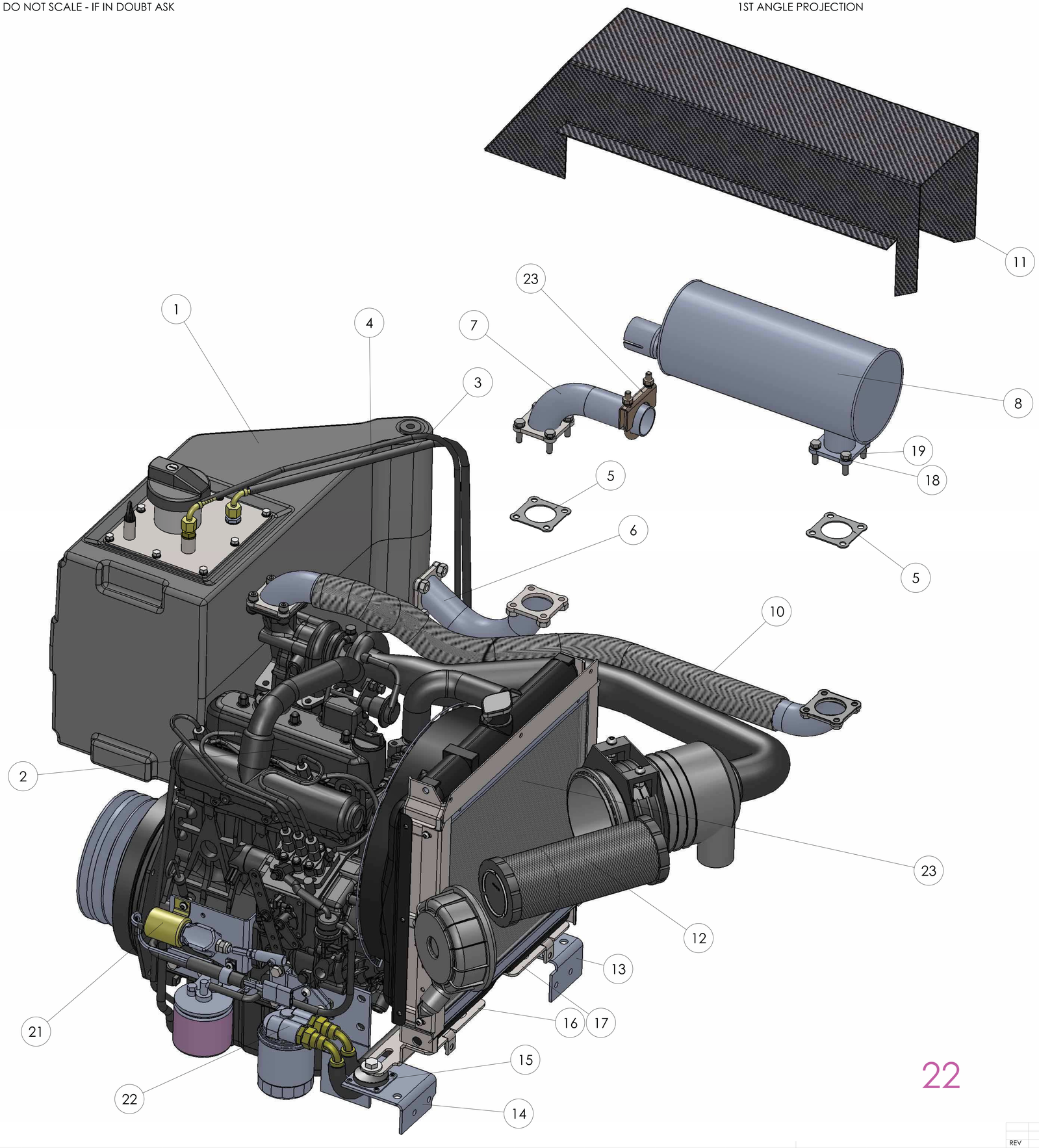
SCALE:1:5 SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-1-1003F	FUEL TANK ASSY	1
2	QC160-6-1001K3	ENGINE ASSY	1
3	QC160-1-1038	FUEL SUCTION PIPE	1
4	QC160-1-1039	FUEL BLEED PIPE	1
5	S120021	EXHAUST GASKET	5
6	QC160-2-56	EXHAUST SPIGOT	1
7	QC160-2-57MK2	EXHAUST BELBOW	1
8	QC160-6-61	SILENCER	1
9	QC160-6-1020	AIR INTAKE PIPE	1
10	QC160-6-48	FLEXIBLE EXHAUST PIPE	1
11	QC160-6-93	EXHAUST GUARD	1
12	SI20003-2	AIR FILTER ELEMENT	1
13	QC160-6-56	NS RAD SUPPORT B-S	1
14	QC160-6-77	OS RAD SUPPORT QT	1
15	SI-20015	LOWER RAD MOUNT	2
16	QTRAK-048	LOER RAD BKT	1
17	QTRAK-048OH	LOWER RAD BKT	1
18	90803	M8 SPRING WASHER	20
19	90830	M8 x 30 BOLT	8
20	SI 20032	THROTTLE SOLENOID	1
21	QC160-6-1032	REMOTE OIL FILTER MOUNT	1
22	QC160-6-82	MESH SCREEN	1
23	C150113-2	EXHAUST CLAMP	1

KUBOTA ENGINE

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		27/6/11
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

TITLE:
FUEL AND EXHAUST SYSTEM EXPLODED

WEIGHT:

DWG NO.

A0

SCALE:1:10

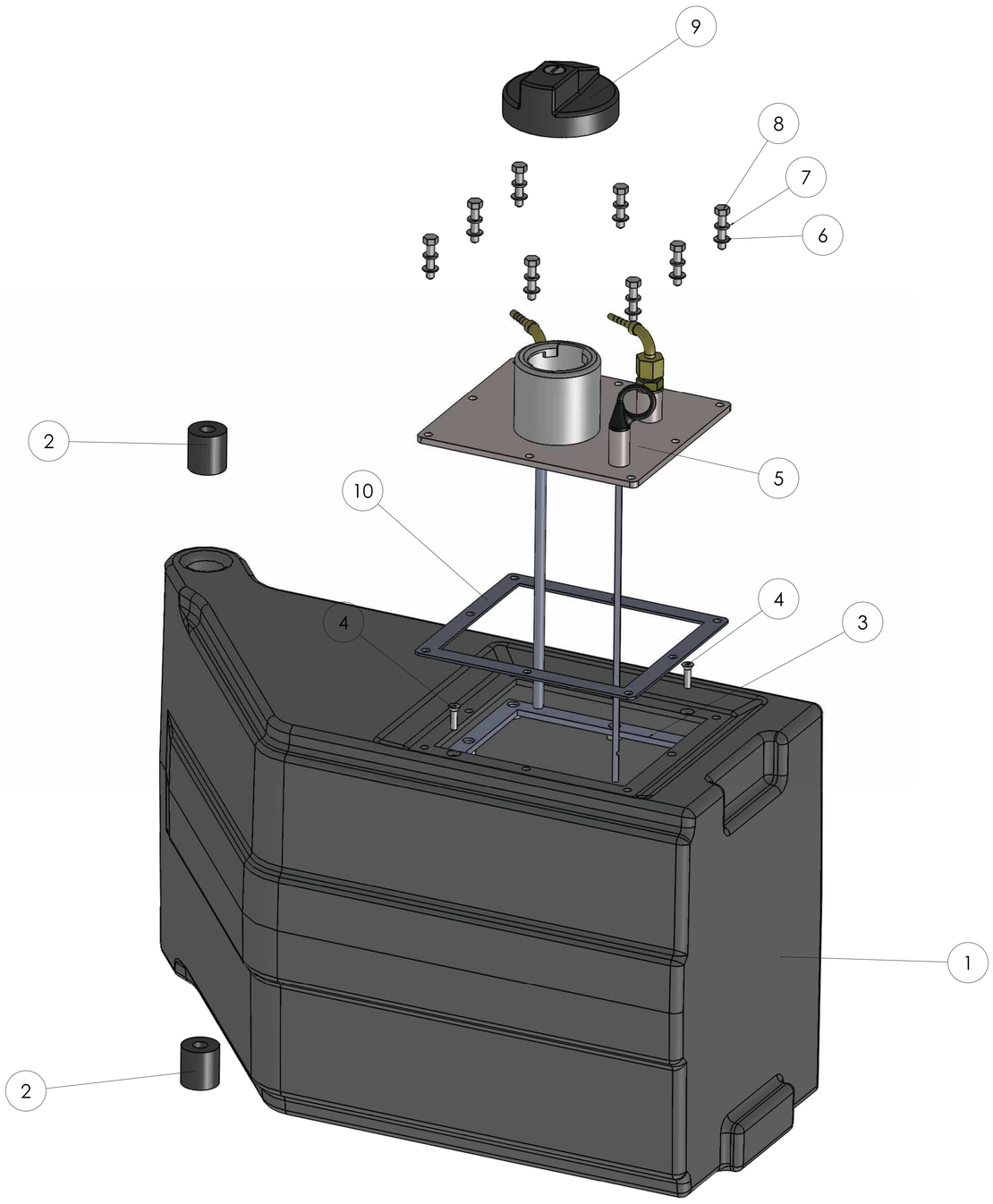
SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-1-1003-F	FUEL TANK	1
2	QC160-1-1011	QUAD CHIP TANK MOUNTING BUSH	2
3	QC160-1-26	TANK CLAMP PLATE	1
4	80520	C/SUNK HD BOLT	2
5	CQ160-1-27A	FUEL TANK PLATE	1
6	90602	FLAT WASHER	8
7	90603	M6 S/WASHER	8
8	90630	HEX HD BOLT	8
9	STC1928-109	STC1928-109 FUEL CAP	1
10	QC160-9-1016	TANK GASKET	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		11/4/11
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

WEIGHT:

TITLE:
FUEL TANK EXPLODED
FUEL TANK ASSY

DWG NO. A0

SCALE:1:5 SHEET 1 OF 2

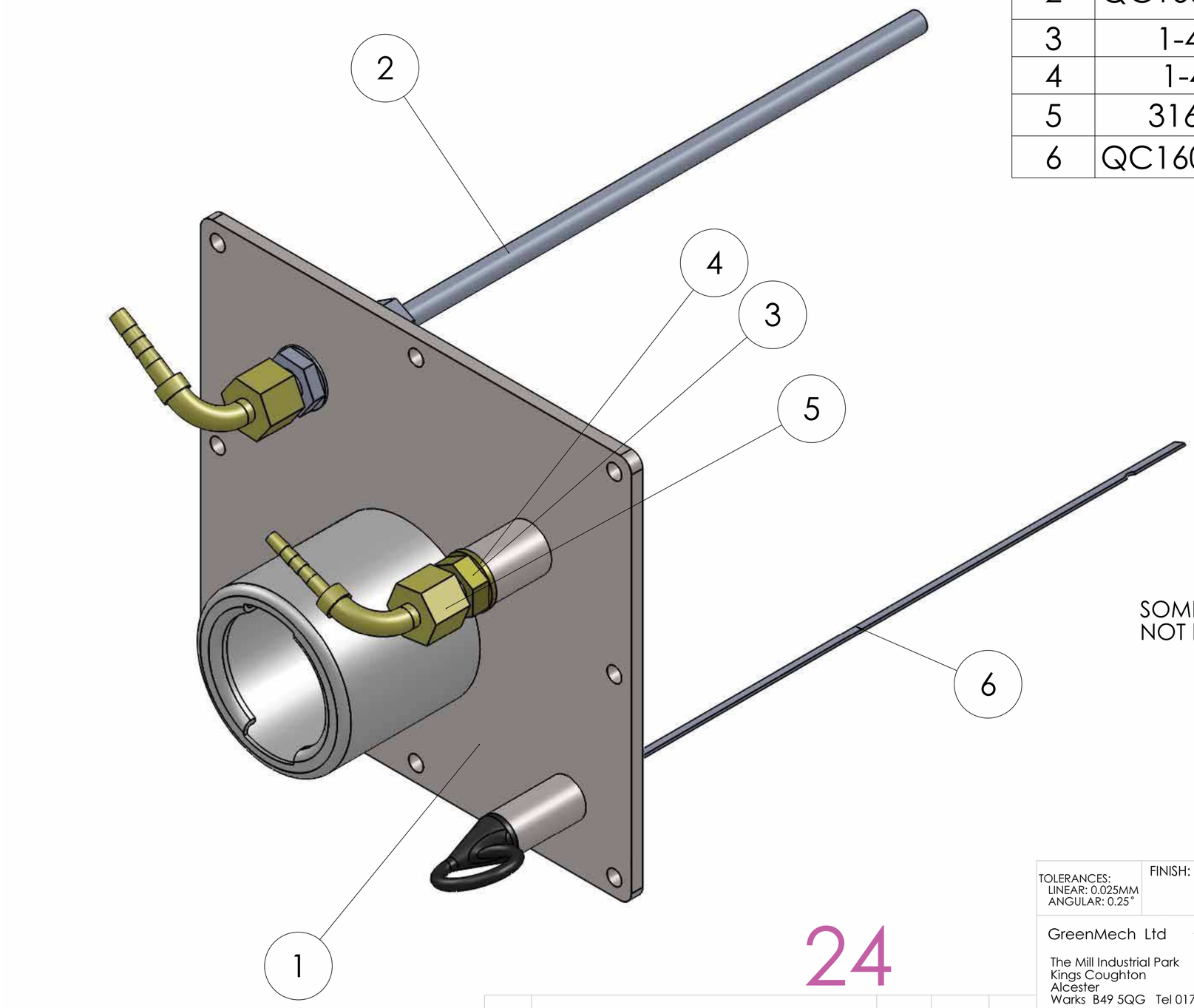
GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-1-27	FUEL TANK PLATE	1
2	QC160-1-1036	SUCTION PIPE	1
3	1-4MM	MALE ADAPTOR	1
4	1-4BW	BONDED WASHER	1
5	316 TAIL	HOSE TAIL	1
6	QC160-1-1034	DIPSTICK	1

SOME EARLY MODELS DO NOT INCLUDE DIPSTICK

24

REV	MODIFICATION	DRAWN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025MM
ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE
DRAWN	BGG		11/4/11
CHK'D			
APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/-0.025mm
FABRICATED PARTS +/-1.0mm

GreenMech Ltd

The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

MATERIAL:

TITLE:
FUEL TANK PLATE

WEIGHT:

DWG NO. A2

SCALE:1:5

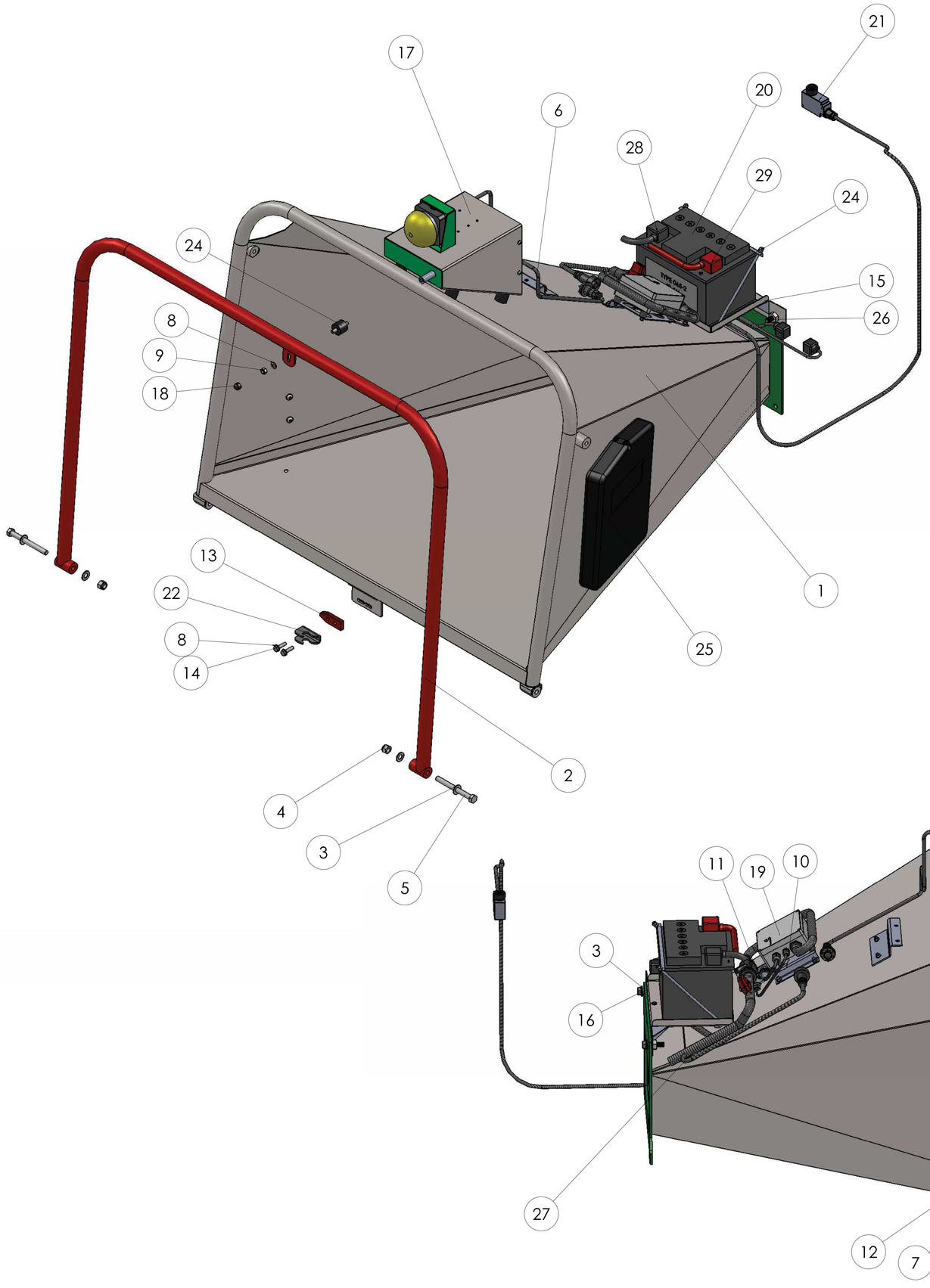
SHEET 2 OF 2

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-4-1	INFEED CHUTE	1
2	QC160-4-7	CONTROL BAR	1
3	91202	FLAT WASHER	6
4	91201	M12 NYLOC	2
5	912120	HEX HD BOLT	2
6	QC160-4-22	BRIDGE BKT	1
7	QC160-5-3	DISCHARGE DOCKING BKT	1
8	90802	FLAT WASHER	9
9	90801	NYLOC NUT	7
10	QC160-6-51	J BOX BKT	1
11	ST1928-6-24	HARNESS BKT	1
12	EC150021-1	LYNCH PIN	1
13	QC160-4-26	LATCH GUIDE	1
14	90830	M8 x 30 BOLT	2
15	QC160-1-18	BATTERY TRAY	1
16	91203	SPRING WASHER	2
17	QC160-4-10	CONTROL BOX	1
18	QC160-4-1009	M8 NUT CAP	5
19	QC160-6-1028	JUNCTION BOX	1
20	QC160-6-1002	065-2 48AH BATTERY	1
21	C200206	MICROSWITCH	1
22	QC160-4-1011	LATCH	1
23	SI20014	ANTIVIBRATION MOUNT	5
24	C200906	BATTERY CLAMP KIT	1
25	C170409	DOCUMENT CASE	1
26	91245	HEX HD BOLT	2
27	QC160-4-10	MK1 CONTROL BOX	1
28	QC160-6-1035	NEGATIVE BATTERY LEAD	1
29	QC160-6-1034	POSITIVE BATTERY LEAD	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		28/6/11
CHK'D			
APPV'D	BGG		

TOLERANCES

MACHINED PARTS - +/- 0.025mm

FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:

INFEED CHUTE EXPLODED

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO.

A0

SCALE:1:10

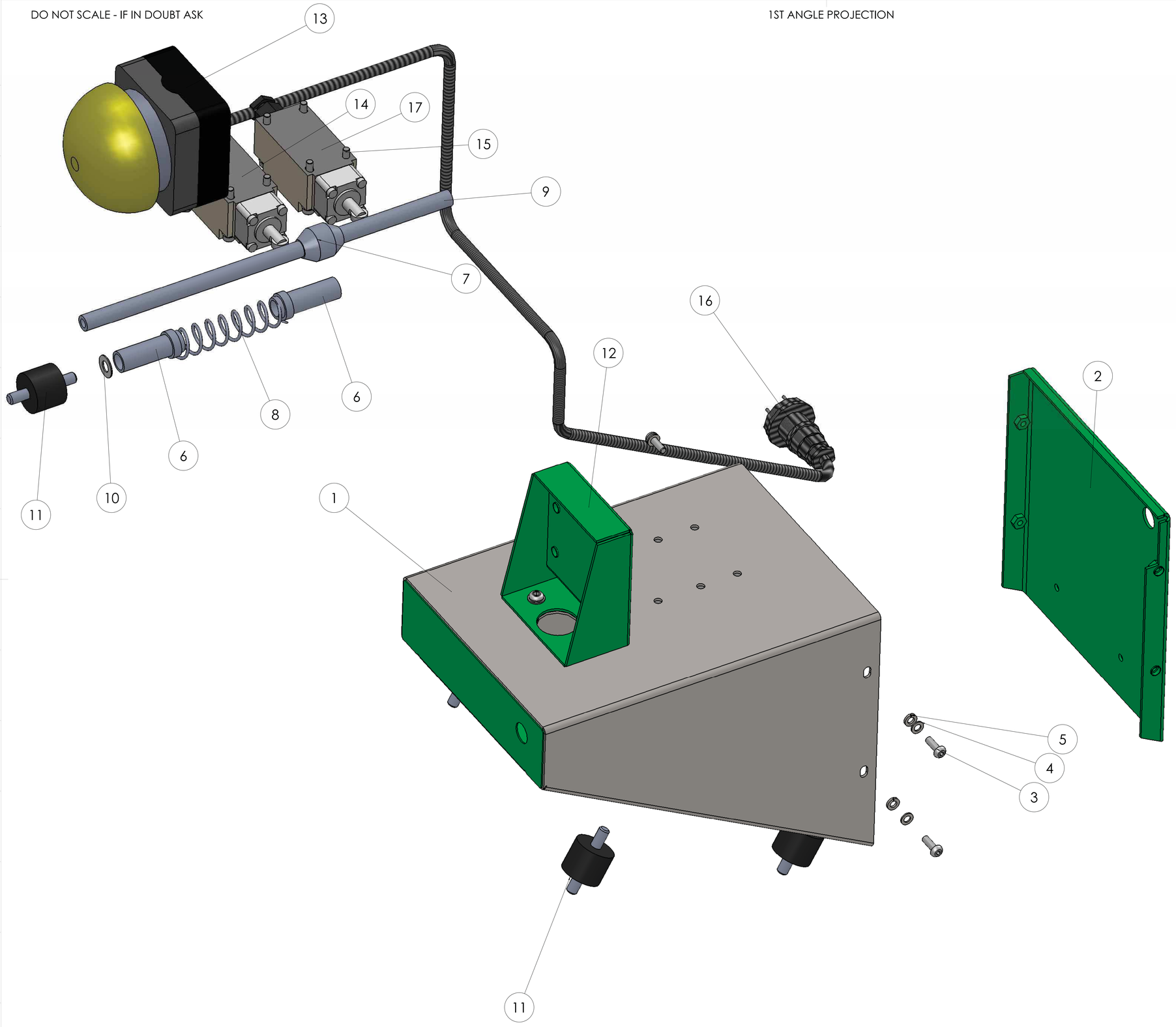
SHEET 1 OF 3

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-4-10	CONTROL BOX FAB	1
2	QC160-4-11	END COVER	1
3	90516BH	M5 x 16mm B/HEAD	4
4	90502	FLAT WASHER	4
5	90503	M5 S/WASHER	12
6	QC160-4-17	SPRING TUBE	2
7	QC160-4-18	STRIKER BOSS	1
8	C200327	SPRING D12770	1
9	QC160-4-16	SLIDE ROD	1
10	90802	FLAT WASHER	1
11	S120014(S)	ANTIVIBRATION MOUNT	5
12	QC160-4-19	SWITCH BOX	1
13	QC160-9-1003	RESET SWITCH	1
14	C203111	REVERSE LIMIT SWITCH	1
15	90540(25)CH	CAPHEAD BOLT	8
16	QC160-6-1029	CONTROL BOX HARNESS	1
17	C203111-1	STOP LIMIT SWITCH	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		28/6/11
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

WEIGHT:

TITLE:

CONTROL BOX

INFEED CHUTE EXPLODED

DWG NO

SCALE:1:5

SHEET 2 OF 3

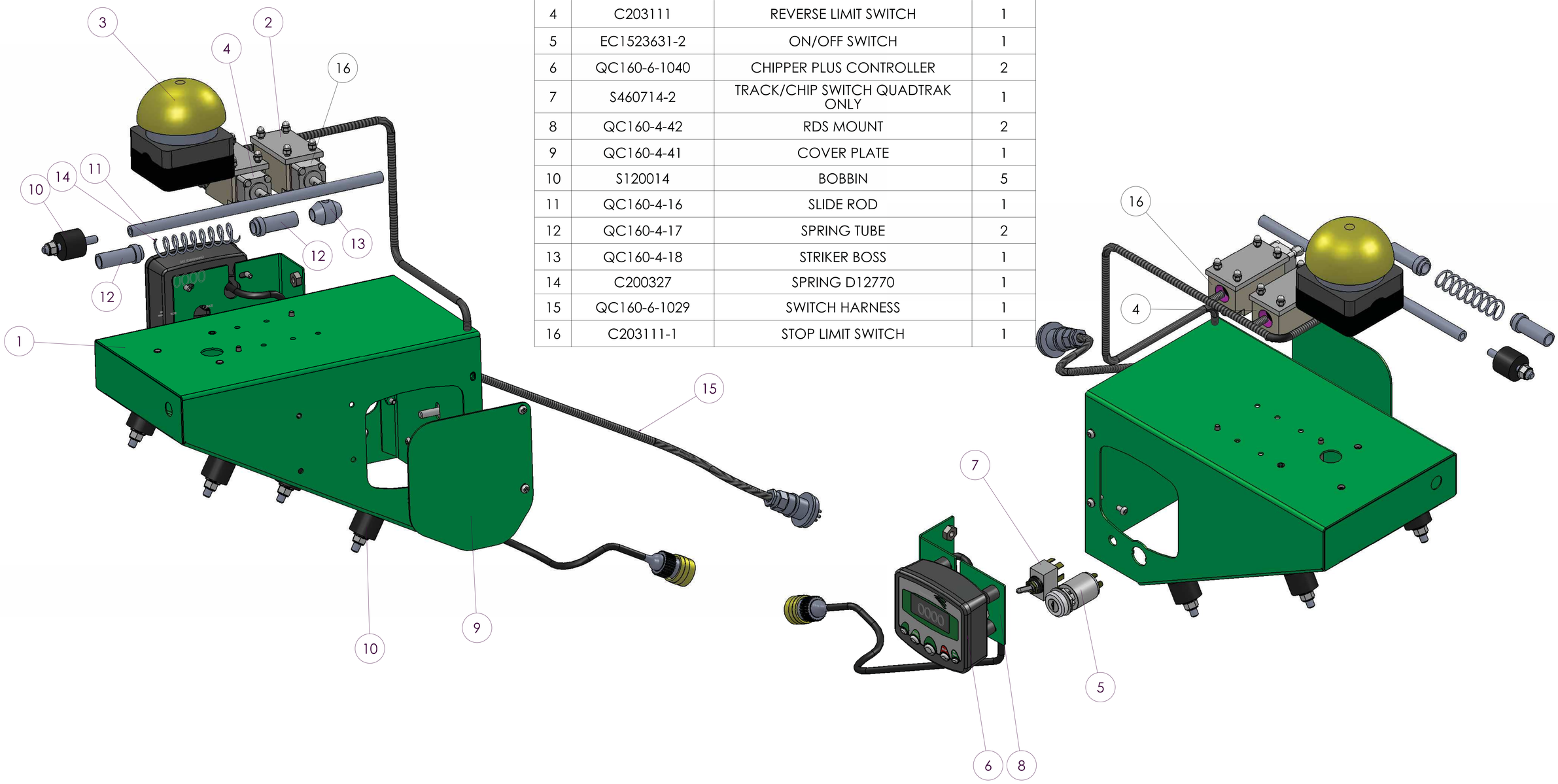
DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-

ITEM NO.	PART NUMBER	DESCRIPTION	Built up/QTY.
1	QC160-4-10MK2	CONTROL BOX	1
2	MK2ST1928-4-73	BOLTING PLATE	2
3	QC160-6-1003	RESET SWITCH	1
4	C203111	REVERSE LIMIT SWITCH	1
5	EC1523631-2	ON/OFF SWITCH	1
6	QC160-6-1040	CHIPPER PLUS CONTROLLER	2
7	S460714-2	TRACK/CHIP SWITCH QUADTRAK ONLY	1
8	QC160-4-42	RDS MOUNT	2
9	QC160-4-41	COVER PLATE	1
10	S120014	BOBBIN	5
11	QC160-4-16	SLIDE ROD	1
12	QC160-4-17	SPRING TUBE	2
13	QC160-4-18	STRIKER BOSS	1
14	C200327	SPRING D12770	1
15	QC160-6-1029	SWITCH HARNESS	1
16	C203111-1	STOP LIMIT SWITCH	1



REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		8/4/13
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:
LATER TYPE CONTROL BOX FAB

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO
INFEED CHUTE EXPLODED

SCALE:1:5

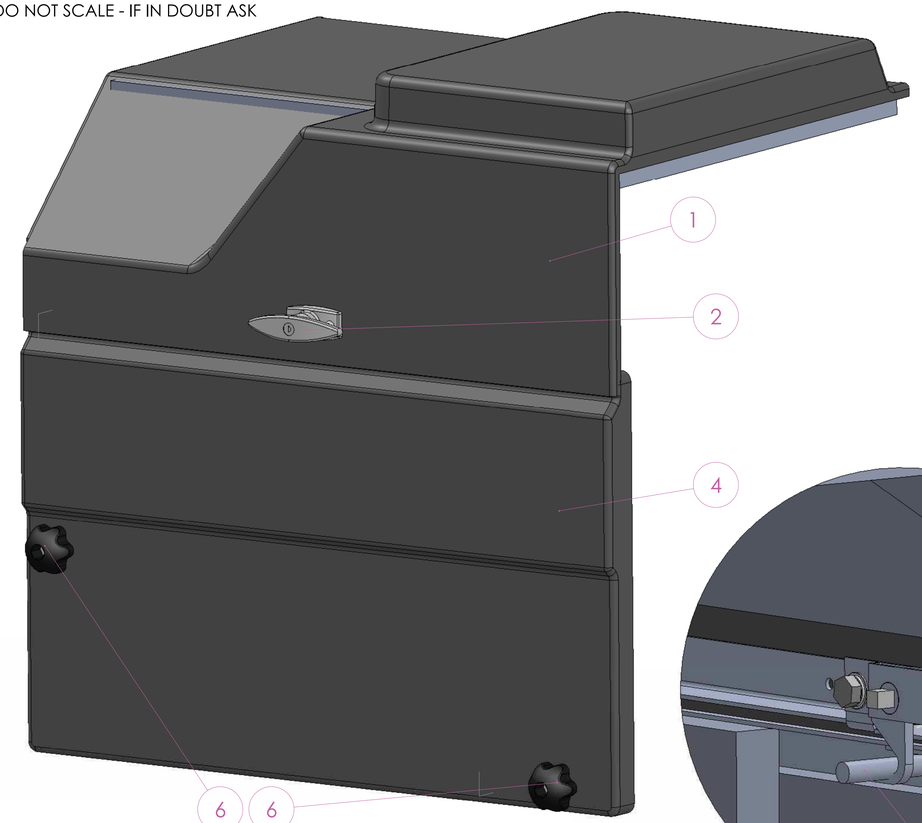
SHEET 3 OF 3

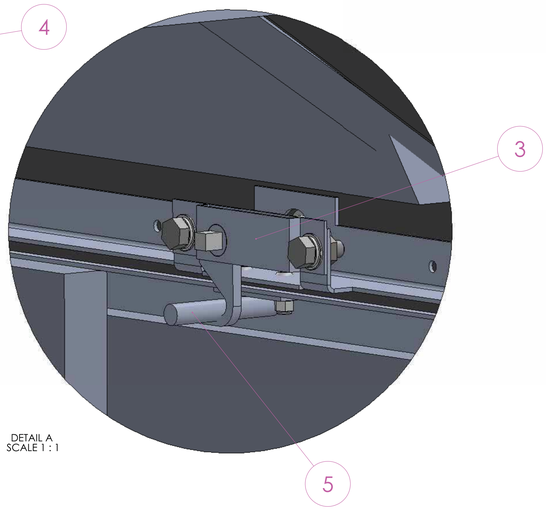
DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

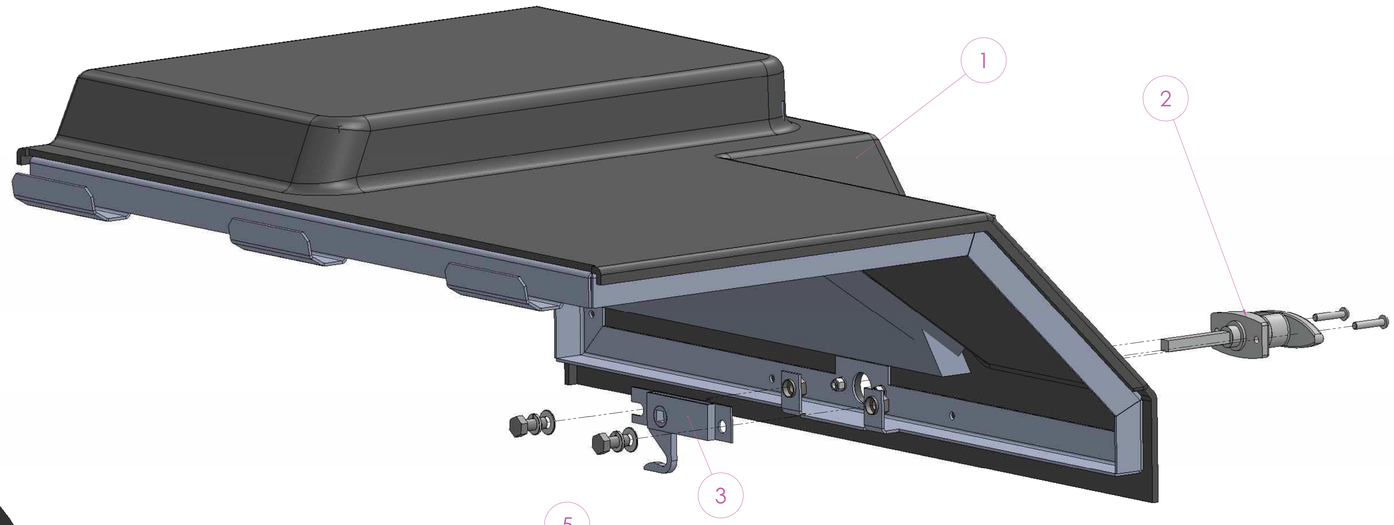
DIMNS IN MM

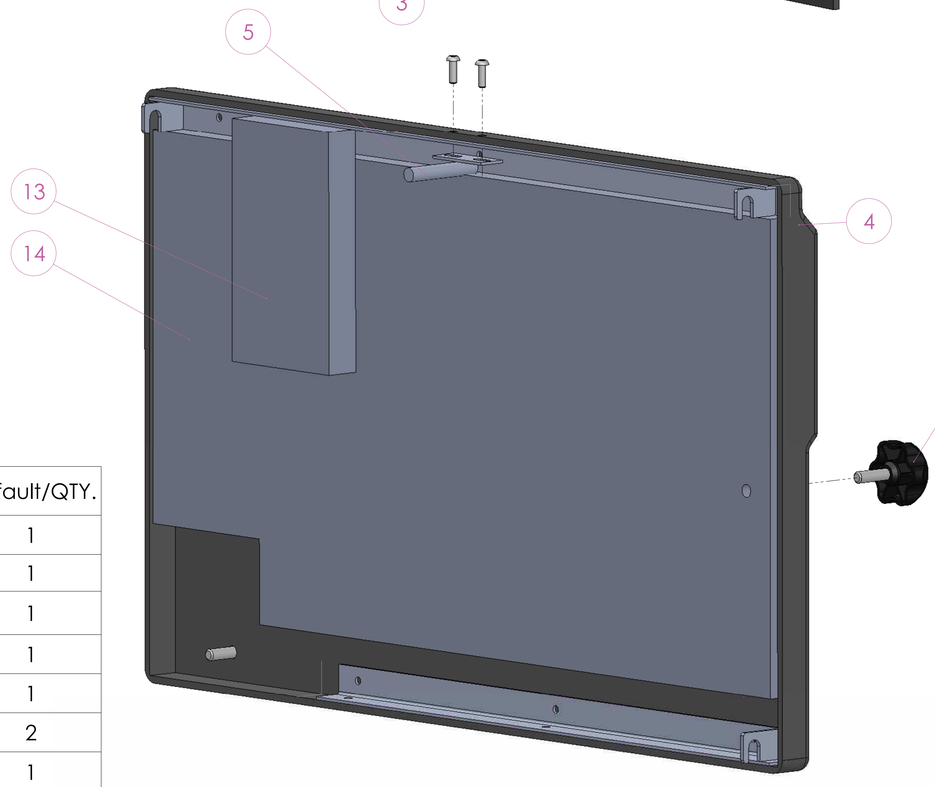
PROGRAM No:-

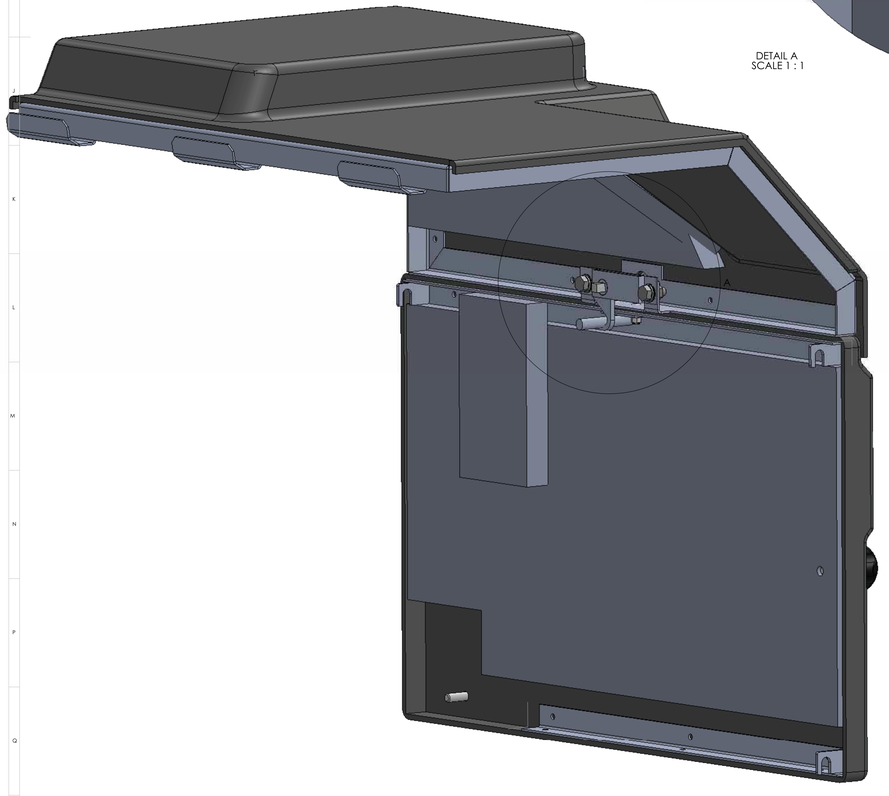




DETAIL A
SCALE 1 : 1







ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.
1	QC160-1-1004A	ENGINE BONNET	1
2	C170101	TEE HANDLE	1
3	C170102	BONNET LATCH	1
4	QC160-1-1005A	ENGINE SIDEPANEL	1
5	QC160-1-85	CATCH PLATE	1
6	CS100-4-17	PLASTIC GRIPNUT	2
7	QC160-1-1048	ENGINE BONNET FOAM	1
8	QC160-1-1049	ENGINE BONNET PACKER FOAM	2
9	QC160-1-1050	ENGINE BONNET FRONT FOAM	1
10	QC160-1-1051	ENGINE BONNET TRIANGLE FOAM	1
11	QC160-1-1052	ENGINE BONNET SHORT FOAM	1
12	QC160-1-1053	ENGINE BONNET REAR BUFFER FOAM	1
13	QC160-1-1047	ENGINE SIDEPANEL BUFFER FOAM	2
14	QC160-1-1046	ENGINE SIDEPANEL FOAM	1

ENGINE BONNET LINING CONSISTS OF:-
ITEM 7 - 1 OFF
ITEM 8 - 2 OFF
ITEM 9 - 1 OFF
ITEM 10 - 1 OFF
ITEM 11 - 1 OFF
ITEM 12 - 1 OFF
ITEM 13 - 1 OFF

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		12/4/13
CHK'D			
APPV'D	BGG		

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

WEIGHT:

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

TITLE:
ENGINE BONNET & SIDEPANEL

DWG NO. A0

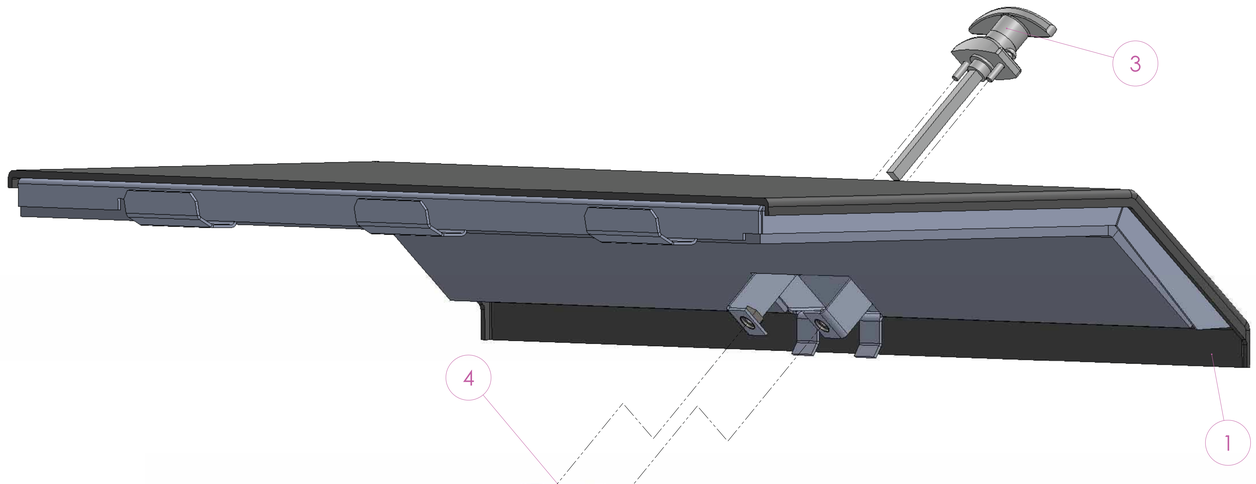
SCALE:1:5 SHEET 1 OF 1

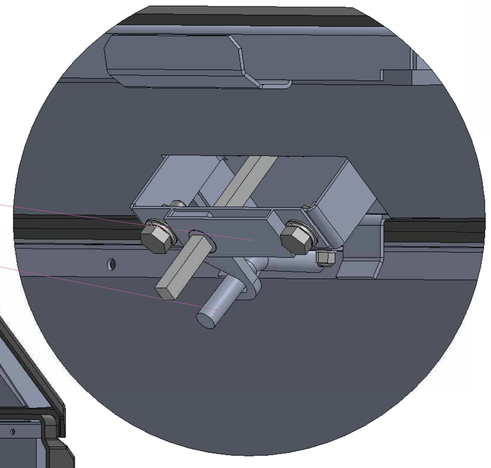
DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

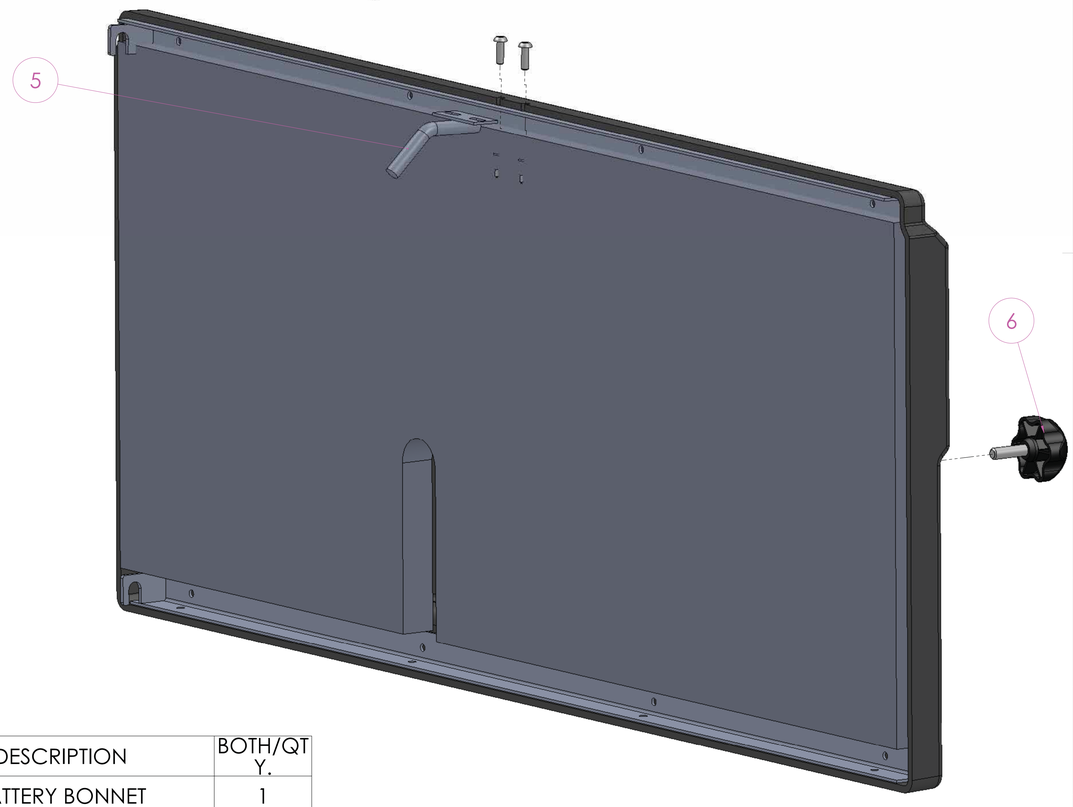
DIMNS IN MM

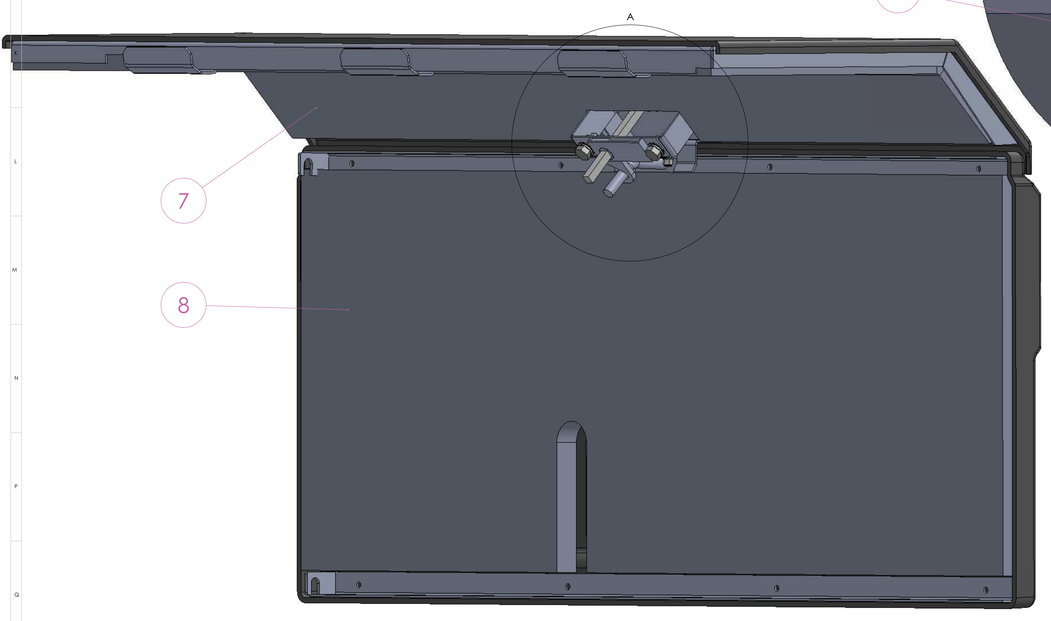
PROGRAM No:-





DETAIL A
SCALE 1 : 1





ITEM NO.	PART NUMBER	DESCRIPTION	BOTH/QTY.
1	QC160-1-1006A	BATTERY BONNET	1
2	QC160-1-1007A	BATTERY SIDE PANEL	1
3	C170101	TEE HANDLE	1
4	C170102	BONNET LATCH	1
5	QC160-1-86	CATCH PLATE	1
6	CS100-4-17	PLASTIC GRIPNUT	2
7	QC160-1-1042	BATTERY BONNET FOAM	1
8	QC160-1-1043	BATTERY SIDEPANEL FOAM	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		12/4/13
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

WEIGHT:

TITLE:
BATTERY BONNET & SIDEPANEL

DWG NO. A0

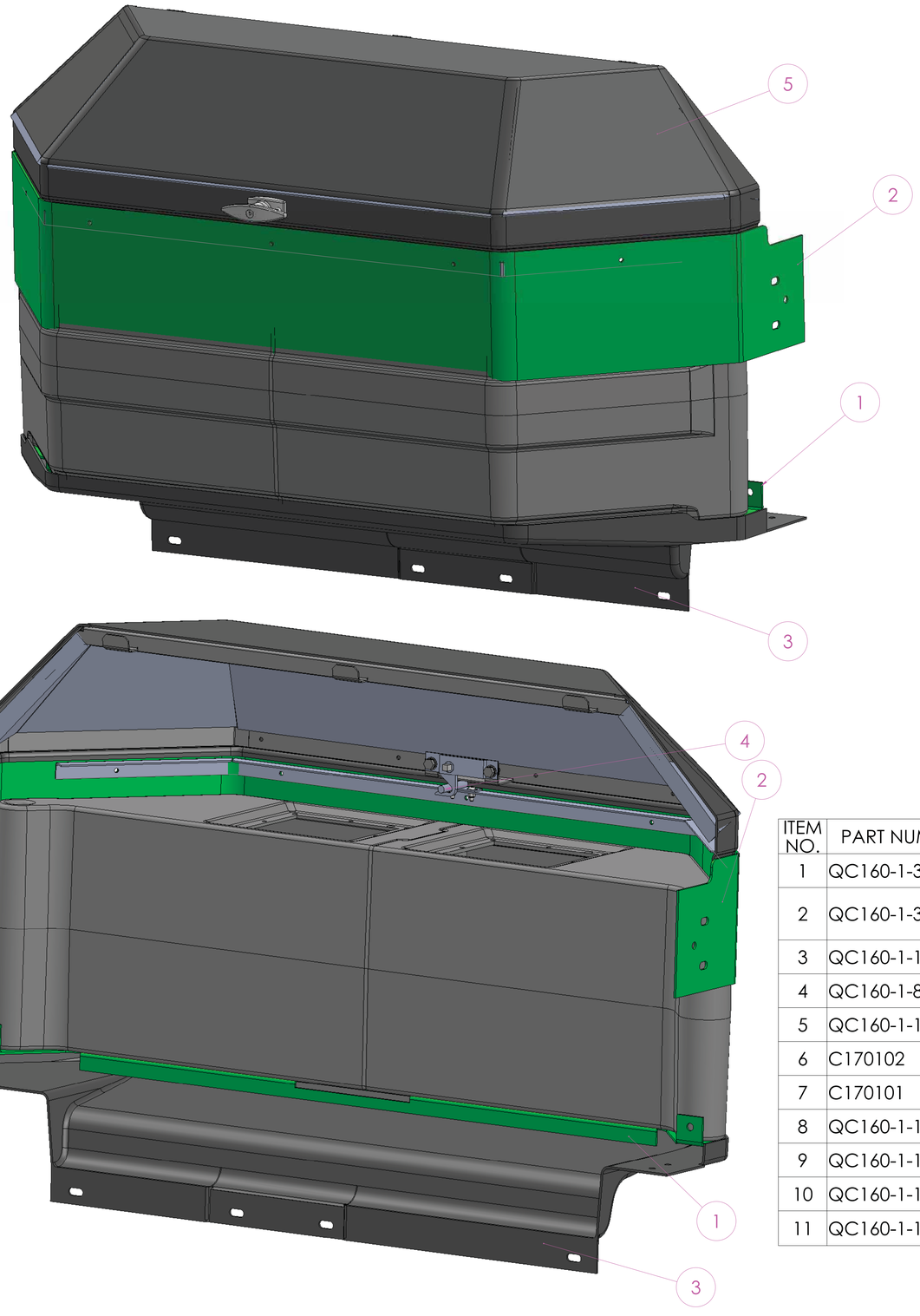
SCALE:1:5 SHEET 1 OF 1

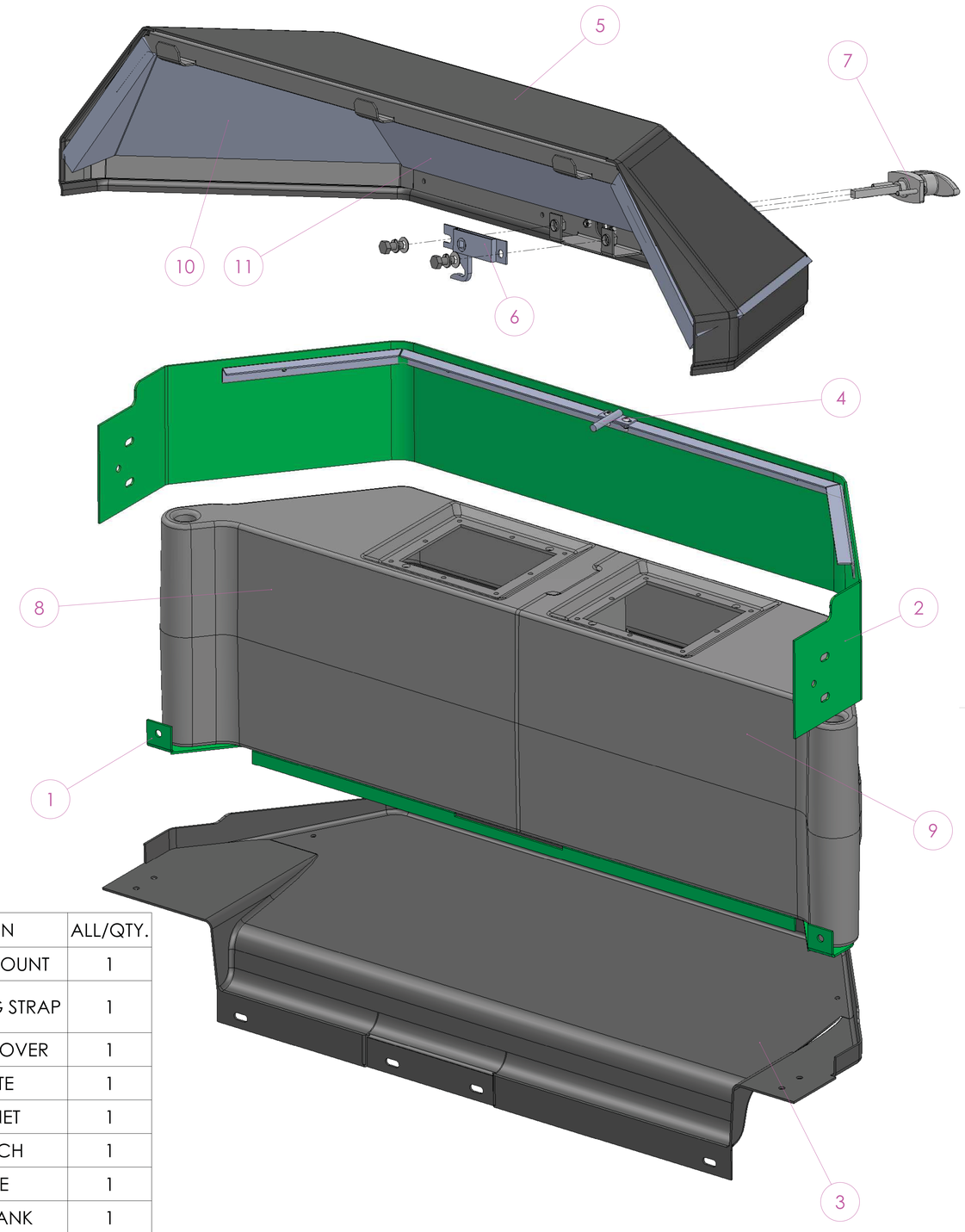
DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-





ITEM NO.	PART NUMBER	DESCRIPTION	ALL/QTY.
1	QC160-1-30	LOWER TANK MOUNT	1
2	QC160-1-34	TANK MOUNTING STRAP	1
3	QC160-1-1009	TANK LOWER COVER	1
4	QC160-1-85	CATCHPLATE	1
5	QC160-1-1008A	TANK BONNET	1
6	C170102	BONNET LATCH	1
7	C170101	TEE HANDLE	1
8	QC160-1-1003H	HYDRAULIC TANK	1
9	QC160-1-1003F	FUEL TANK	1
10	QC160-1-1044	TANK BONNET FOAM	1
11	QC160-1-1045	TANK BONNET INFILL FOAM	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		15/4/12
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

MATERIAL:

WEIGHT:

TITLE:

TANK BONNET

DWG NO.

A0

SCALE:1:5

SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-

ITEM NO.	PART NUMBER	DESCRIPTION	QUAD/QTY.
1	EC15005-1	DISCHARGE FAB	1
2	91002	FLAT WASHER	3
3	91020	HEX HD BOLT	1
4	C180104	TEE HANDLE	1
5	C200613	TEE BOLT	2
6	QC160-5-1	DISCHARGE FLAP	1
7	91003	SPRING WASHER	1
8	91005	LARGE NYLON WASHER	4
9	9227	PLASTIC HANDLE	2
10	91202	FLAT WASHER	2

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		15/4/13
CHK'D			
APPV'D	BGG		

MATERIAL:

WEIGHT:

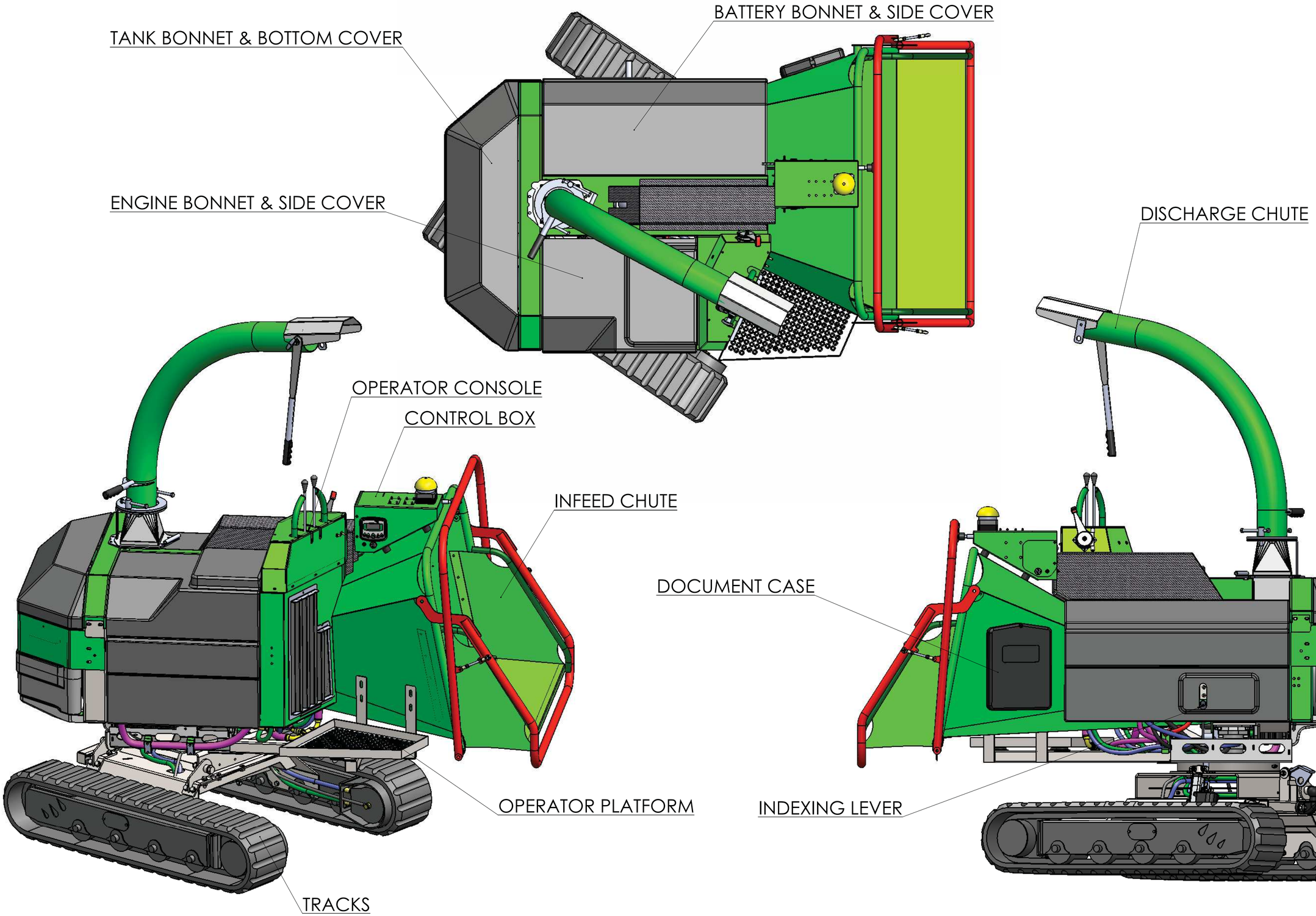
GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

TITLE:
DISHARGE EXPLODED

DWG NO. A0

SCALE:1:5 SHEET 1 OF 1



DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-

COLOUR CODE

R = RED
B = BLACK
G = GREEN
N = BROWN
U = BLUE
Y = YELLOW
K = PINK
P = PURPLE
W = WHITE
O = ORANGE
S = GREY

REVERSE M/SWITCH (CONTROL BAR)

RESET BUTTON

STOP M/SWITCH (CONTROL BAR)

RELAY

TRACK/CHIP SWITCH

LIFT RAM SWITCH

CLUTCH

CHANGEOVER VALVE

LIFT RAM

BULGIN PLUG

BULGIN PLUG

HYDRAULIC VALVE

FORWARD

REVERSE

CHUTE M/SWITCH

THROTTLE SOLENOID

OIL PRESSURE SWITCH

FUEL SOLENOID

ENGINE EARTH

BONNET M/SWITCH

GLOW PLUGS

COOLANT TEMP SWITCH

20A

40A

RDS UNIT

RDS JUNCTION BOX

KEY SWITCH

OPTIONAL EXTRA
WINCH

WINCH

SWITCHING RELAY

RECIEVER

OUT

IN

FROM BATTERY

ON / OFF SWITCH

ALTERNATOR

A

FROM BATTERY

M

STARTER MOTOR

33

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES
LINEAR 0.025mm
ANGULAR 0.25 °

FINISH

	NAME	SIGNATURE	DATE
DRAWN	BGG		16/2/11
CHK'D			
APPV'D	BGG		

REMOVE ANY BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

WEIGHT:

TITLE:
QC160 QUADTRACK
ELECTRICAL

DWG NO. A0

SCALE 1:25 SHEET 1 OF 1

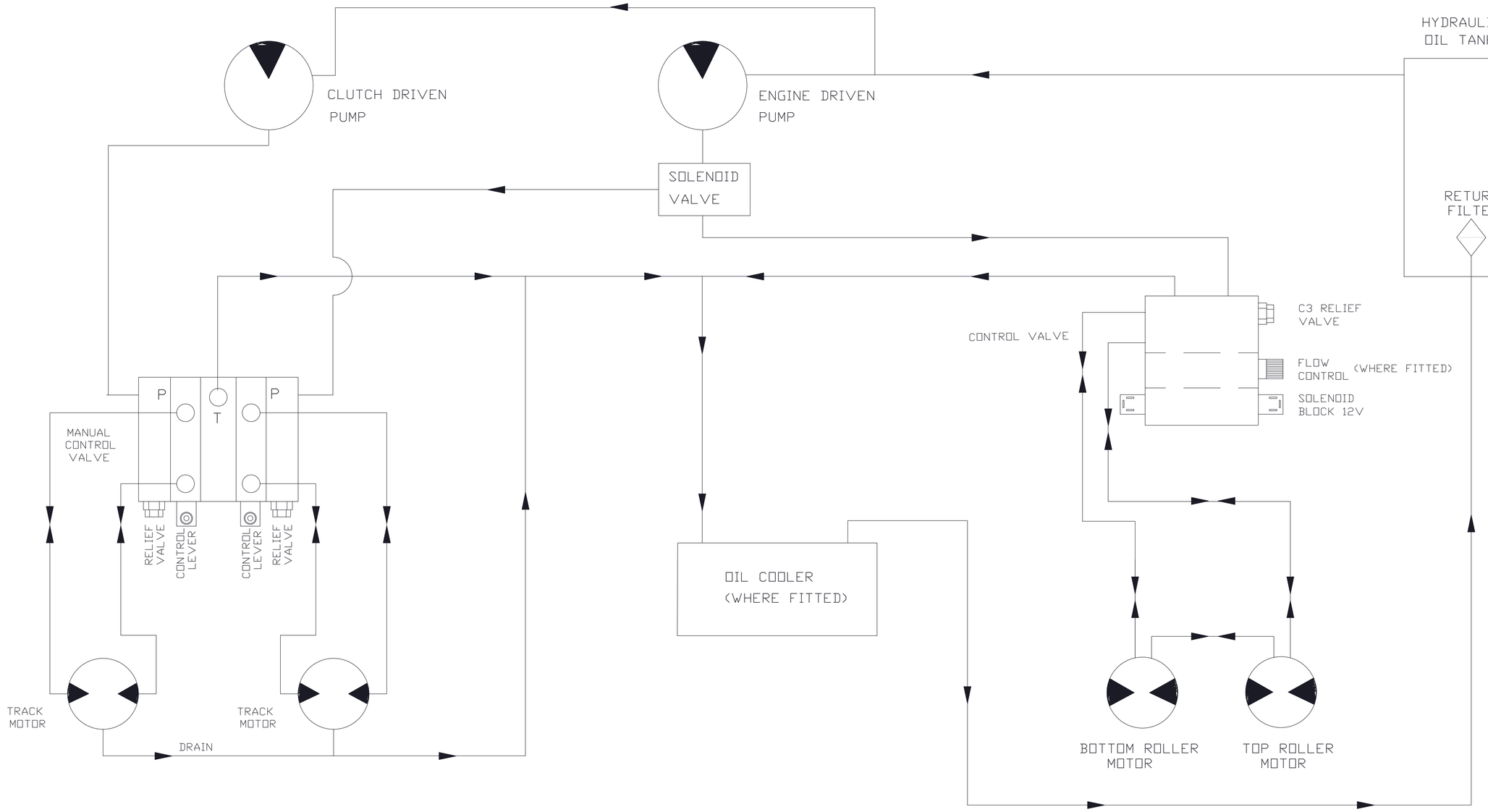
GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Works B49 5QG
Tel 01789 400044

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



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REV	MODIFICATION	DRAWN	APPRD	DATE

		NAME	SIGNATURE	DATE
DRAWN	BGG			17/3/11
CHK'D				
APPV'D	BGG			

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH: xxxxxxxxxx

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/- 0.025mm
FABRICATED PARTS +/- 1.0mm

GreenMech Ltd
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

MATERIAL:

TITLE: QUADTRACK HYDRAULIC CIRCUIT

WEIGHT:

DWG NO.

A1

SCALE:1:1.25

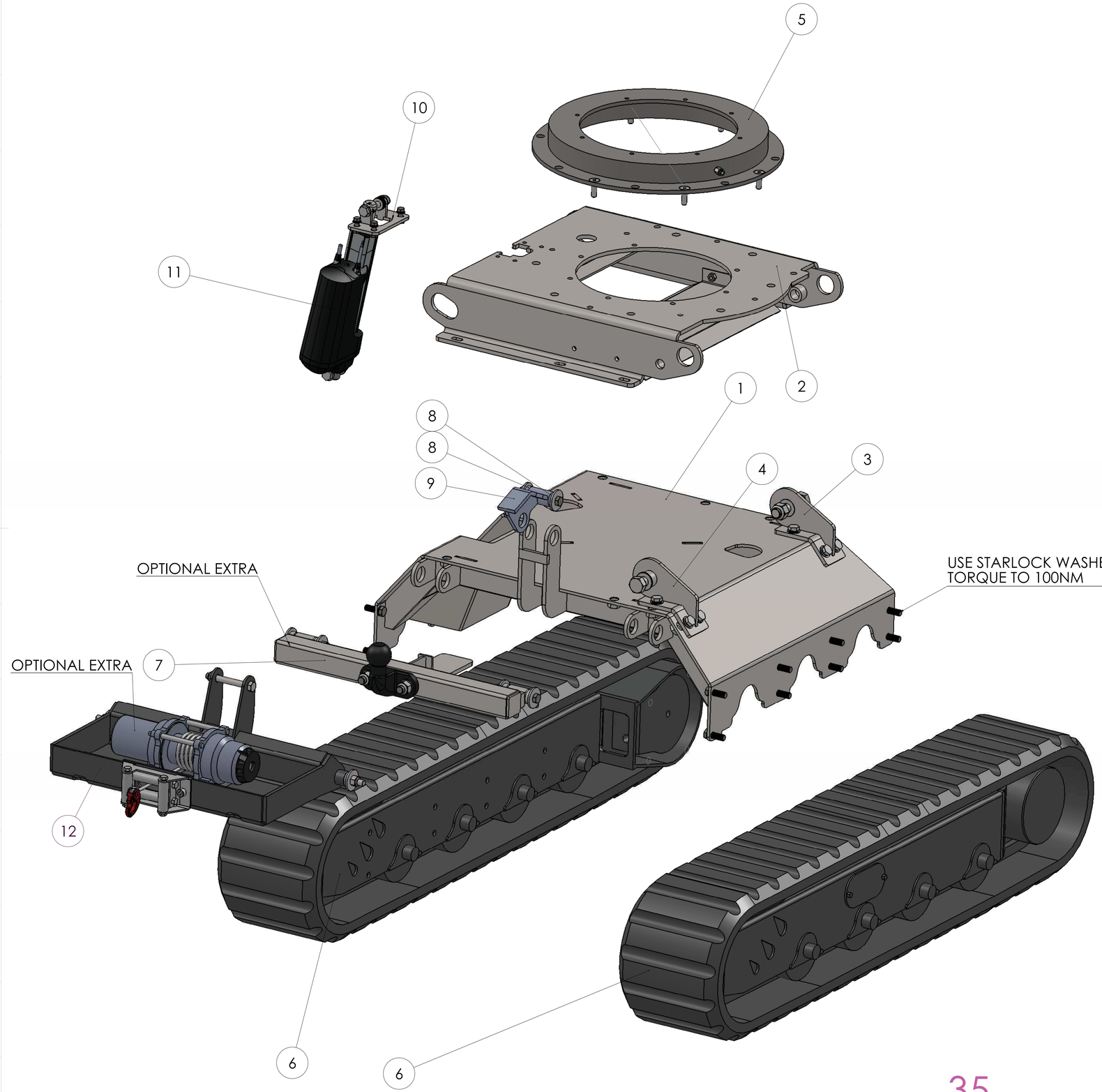
SHEET 1 OF 1

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



USE STARLOCK WASHER & THREADLOCK
TORQUE TO 100NM

ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.
1	QTRAK-001	TRACK CHASSIS	1
2	QTRAK-002	MOUNTING PLATE	1
3	QTRAK-009	PIVOT BKT OPP HAND	1
4	QTRAK-009	PIVOT BKT	1
5	QC160-1-1002N	SLEWING RING	1
6	QC160-9-1017	GEMMO TRACK PAIR	1
7	QTRAK-110	BALL HITCH BEAM	1
8	QTRAK-084	SPACER	2
9	QTRAK-085	TRANSPORT LOCK	1
10	QTRAK-053	ACTUATOR BKT	1
11	QC160-9-1020	ACTUATOR	1
12	QTRAK-0125F	WINCH KIT	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°
FINISH:
DEBUR AND BREAK SHARP EDGES

	NAME	SIGNATURE	DATE
DRAWN	BGG		17/4/13
CHK'D			
APPV'D	BGG		

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

WEIGHT:

TITLE:
TRAK CHASSIS

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

DWG NO QTRAK-001 A0

SCALE:1:10 SHEET 1 OF 1

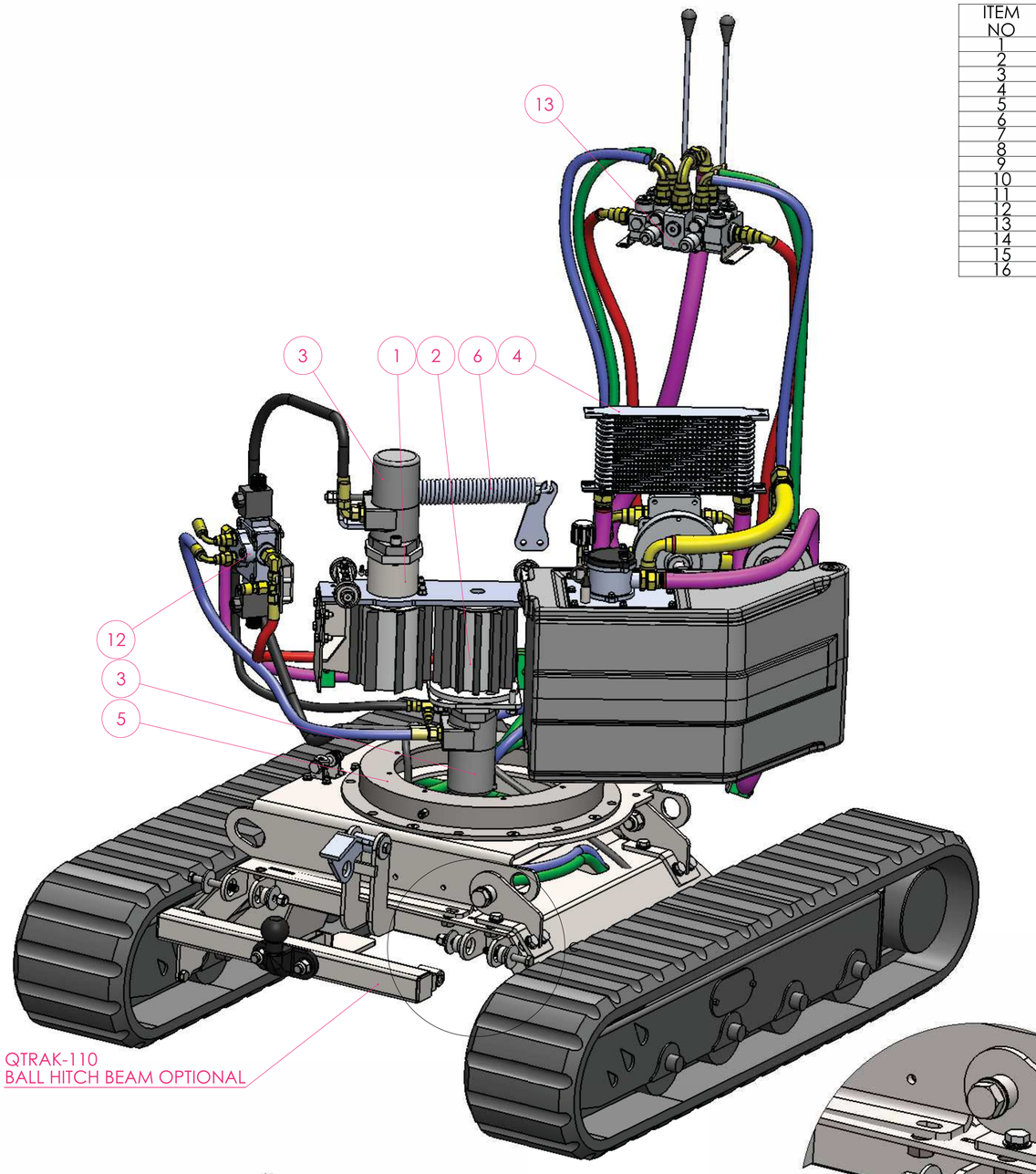
DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

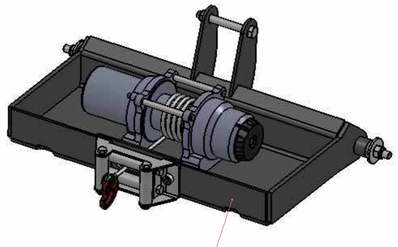
DIMNS IN MM

PROGRAM No:-

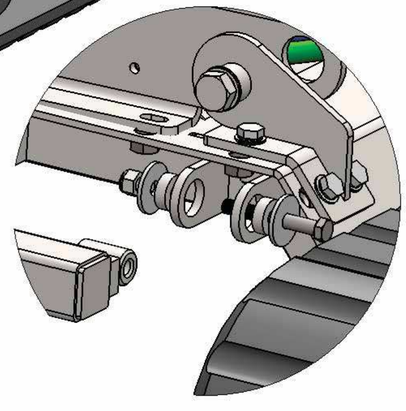
ITEM NO	PART NUMBER	DESCRIPTION	QTY
1	QC160-3-15MK2	SLIDING ROLLER ASSY	1
2	QC160-3-32MK2	FIXED ROLLER	1
3	C200207-1	HYRAULIC MOTOR	2
4	QC160-6-9015	OIL COOLER	1
5	QC160-1-1002N	SLEWING RING	1
6	QC160-3-1001-1	ROLLER RETURN SPRING	1
7	QC160-9-1019	HYDRAULIC PUMP	1
8	QC160-9-1027	CLUTCH	1
9	QC160-9-1026	FINAL DRIVE	1
10	EC151029	OIL RETURN FILTER	1
11	QC160-6-9001	HYDRAULIC PUMP ASSY	1
12	QC160-6-9017	HYDRAULIC VALVE	1
13	STC1928-901	HYDRAULIC VALVE	1
14	QC160-6-9005	HYRAULIC SUCTION PIPE	1
15	QC160-6-9006	HYDRAULIC SUCTION PIPE	1
16	QC160-6-9016	HYDRAULIC RETURN PIPE	1



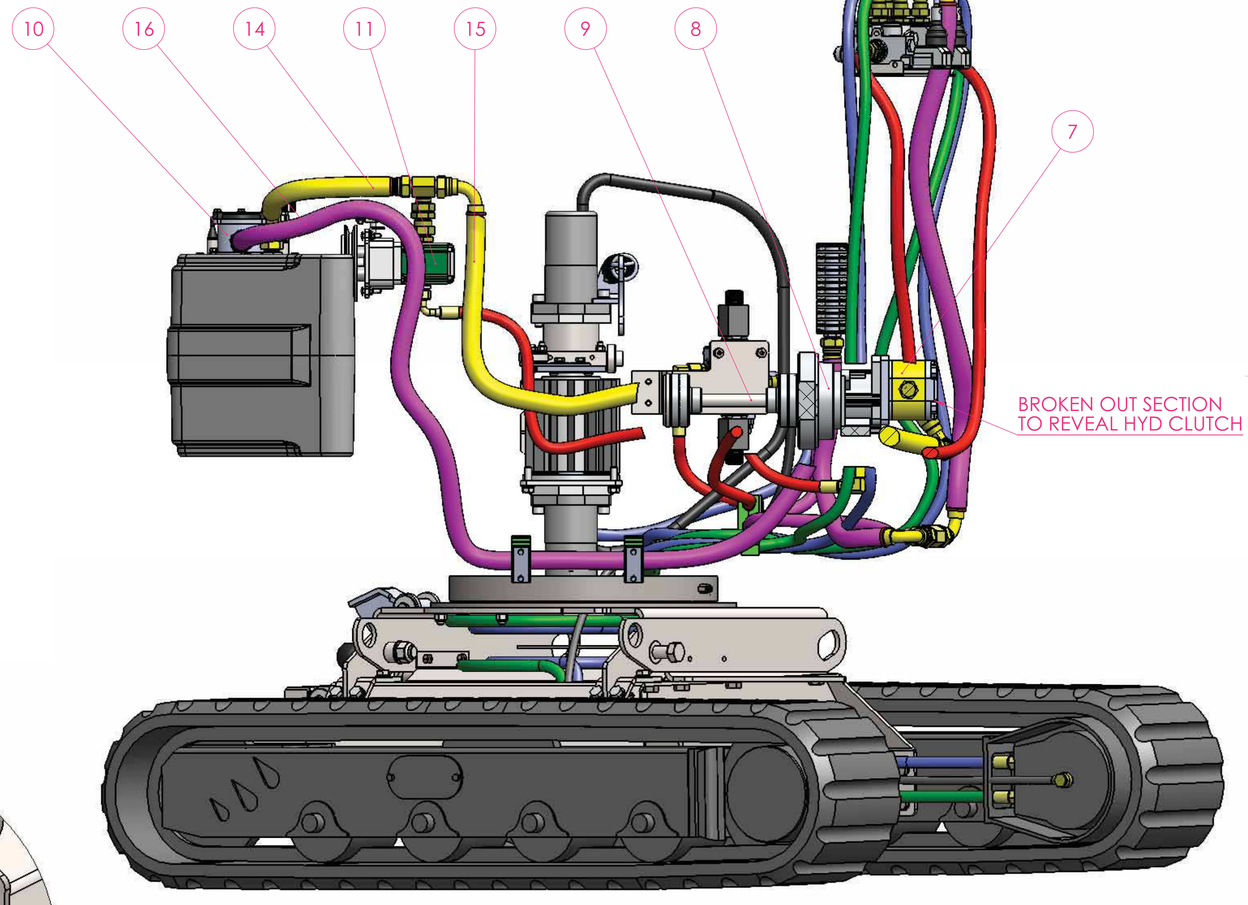
QTRAK-110
BALL HITCH BEAM OPTIONAL



QTRAK-0125F
WINCH KIT OPTIONAL EXTRA



DETAIL C
SCALE 2 : 5



BROKEN OUT SECTION
TO REVEAL HYD CLUTCH

REV	MODIFICATION	DRAWN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°	FINISH: xxxxxxxxxx		NAME	SIGNATURE	DATE
		DRAWN	RVMR		03/04/13
		CHK'D			
		APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/- 0.025mm
FABRICATED PARTS +/- 1.0mm

GreenMech Ltd
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

MATERIAL:

TITLE:
Hydraulics detail

WEIGHT:

DWG NO QUADTRAK A1

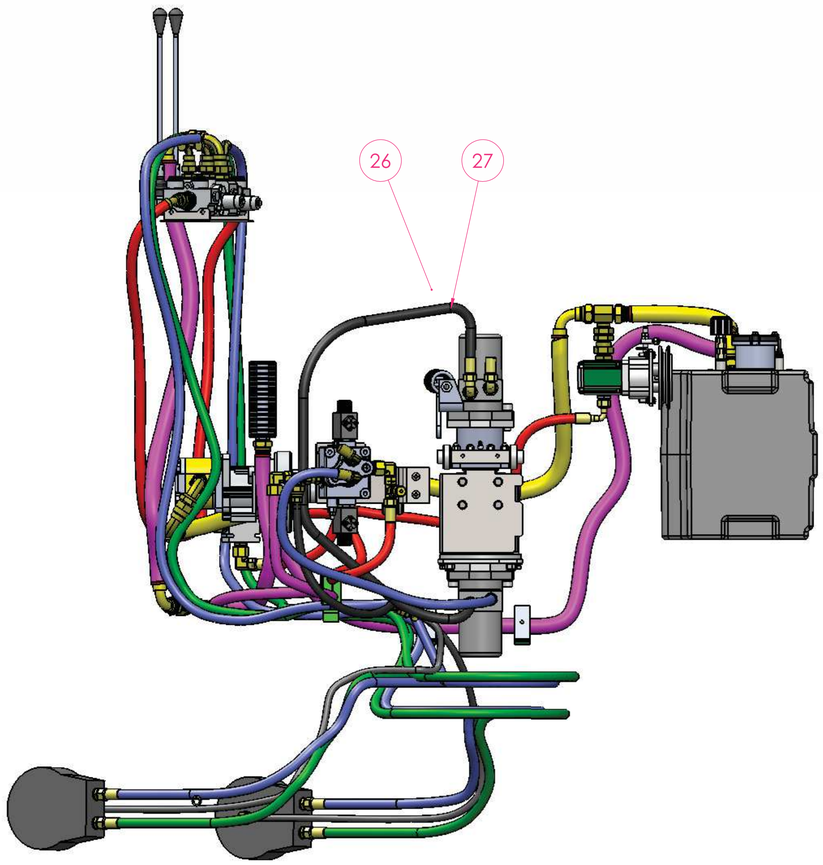
SCALE:1:20 SHEET 2 OF 3

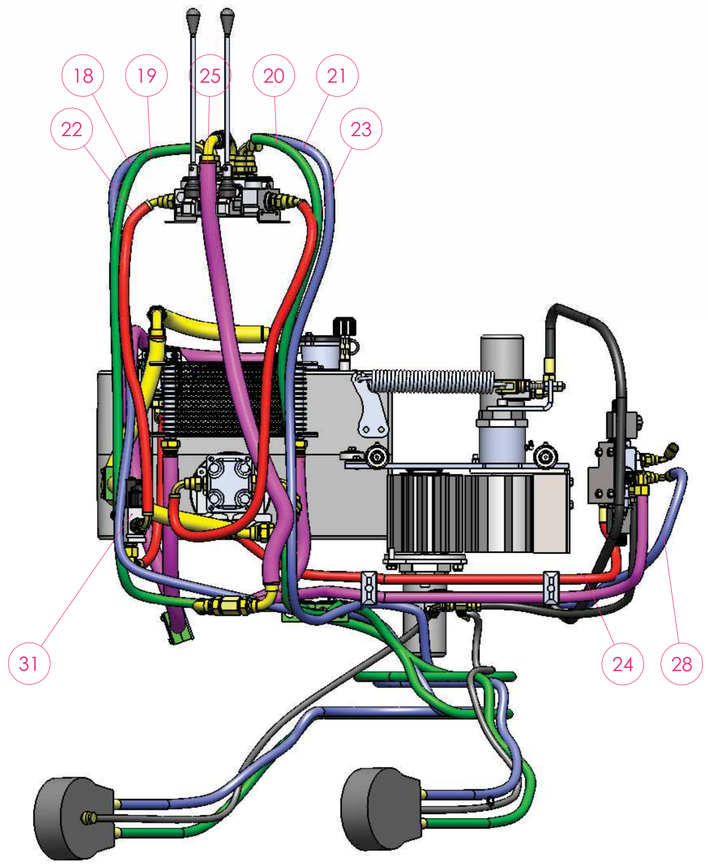
DO NOT SCALE - IF IN DOUBT ASK

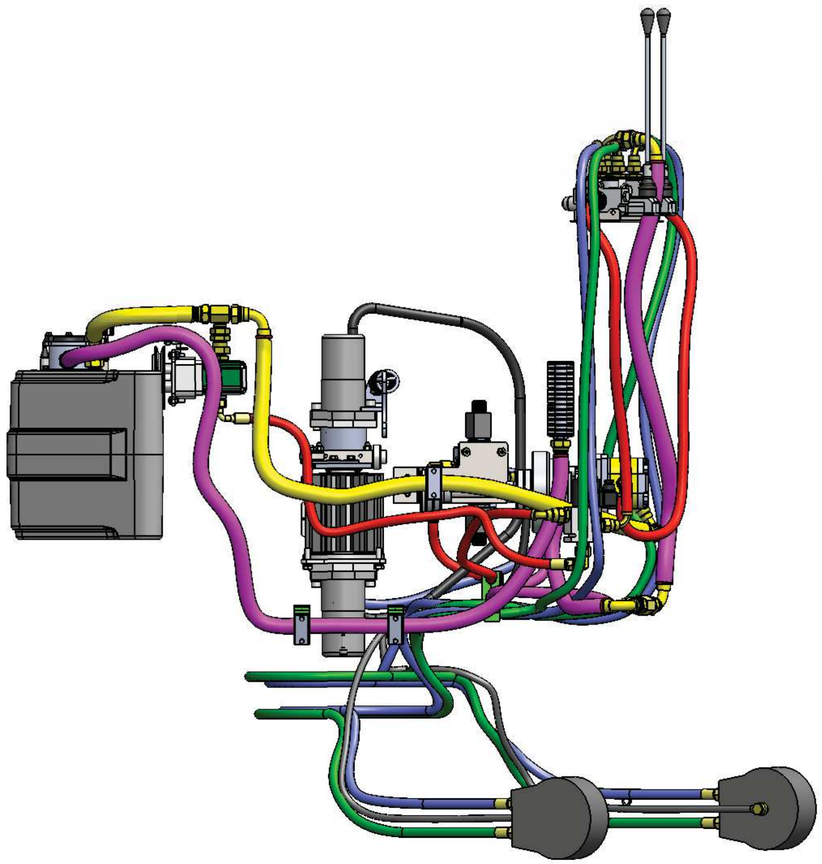
1ST ANGLE PROJECTION

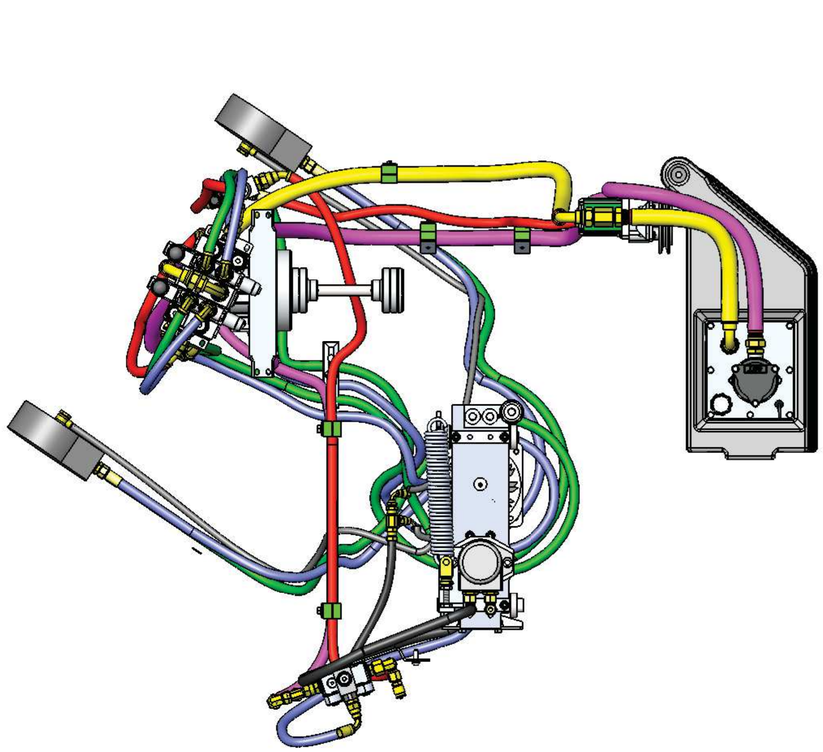
DIMNS IN MM

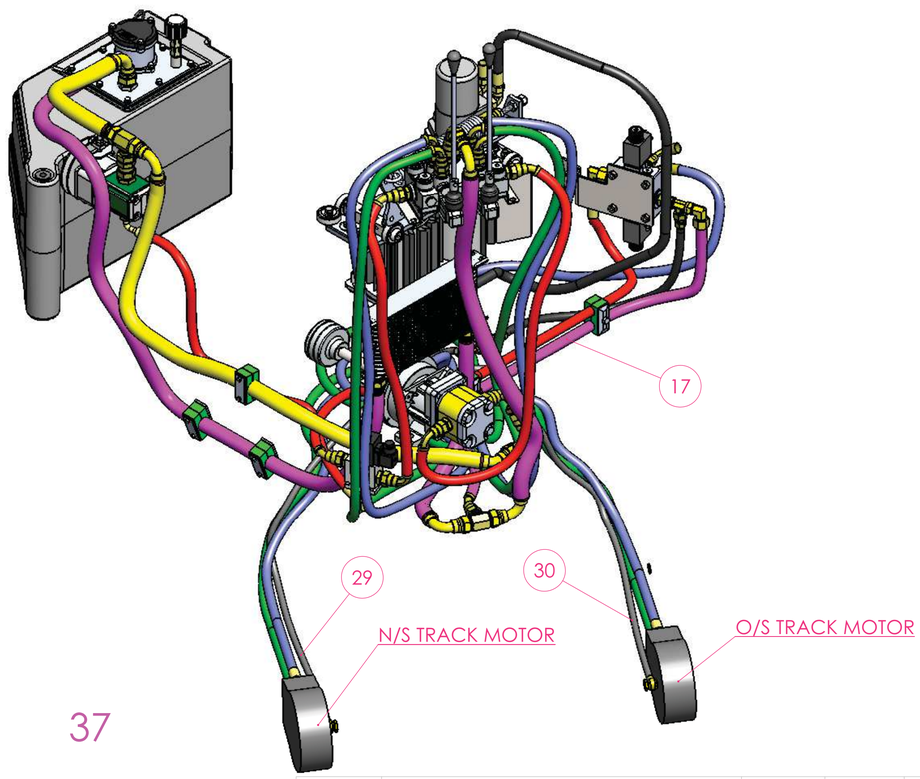
PROGRAM No:-











ITEM NO	PART NUMBER	DESCRIPTION	QTY
17	QC160-6-9016	HYDRAULIC RETURN HOSE	1
18	QTRAK-6-9001	N/S TRACK MOTOR RETURN	1
19	QTRAK-6-9002	N/S TRACK MOTOR FEED	1
20	QTRAK-6-9003	O/S TRACK MOTOR FEED	1
21	QTRAK-6-9004	N/S TRACK MOTOR RETURN	1
22	QTRAK-6-9005	TRACK VALVE FEED	1
23	QTRAK-6-9006	TRACK VALVE FEED	1
24	QTRAK-6-9007	DIRECTIONAL VALVE FEED(ROLLERS)	1
25	QTRAK-6-9008	TRACK VALVE RETURN HOSE	1
26	QC160-6-9010	ROLLER MOTOR FEED HOSE	1
27	QC160-6-9009	ROLLER MOTOR LINK HOSE	1
28	QTRAK-6-9010	ROLLER MOTORS RETURN	1
29	QTRAK-6-9011	N/S TRACK MOTOR BLEED	1
30	QTRAK-6-9012	O/S TRACK MOTOR BLEED	1
31	C251808	12V SOLENOID VALVE	1

REV	MODIFICATION	DRAWN	APPRD	DATE

TOLERANCES: LINEAR: 0.025mm ANGULAR: 0.25°

FINISH: xxxxxxxxxx

	NAME	SIGNATURE	DATE
DRAWN	RVMR		03/04/13
CHK'D			
APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/- 0.025mm
FABRICATED PARTS +/- 1.0mm

GreenMech Ltd
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

MATERIAL:

TITLE: Bare hydraulics

WEIGHT:

DWG NO QUADTRAK A1

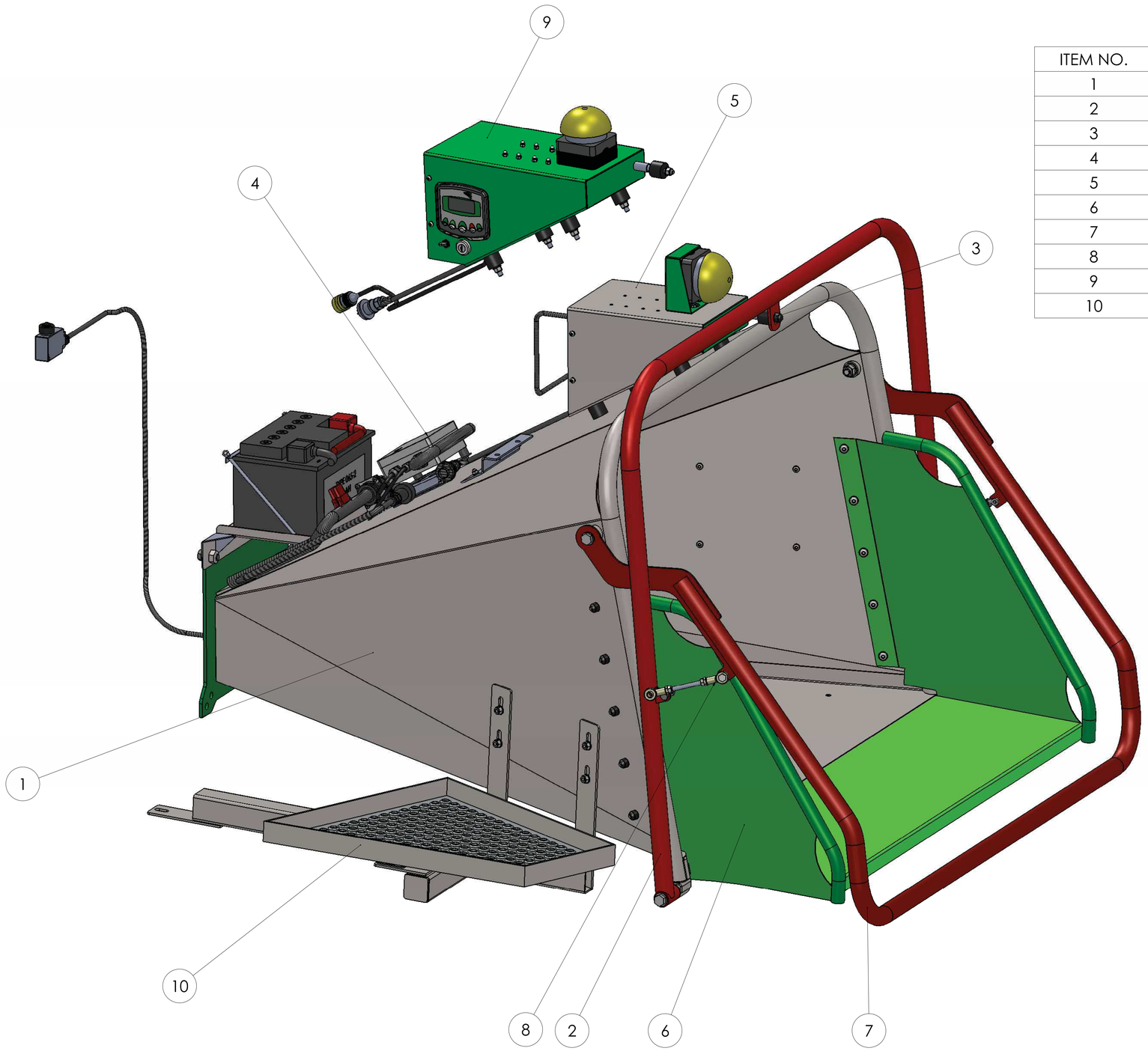
SCALE:1:20 SHEET 3 OF 3

DO NOT SCALE - IF IN DOUBT ASK

1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	QC160-4-1	INFEED CHUTE	1
2	QC160-4-7-QTRAK	CONTROL BAR	1
3	QC160-4-1009	M8 NUT CAP	11
4	QC160-6-1028	JUNCTION BOX	1
5	QC160-4-10	MK1 CONTROL BOX	1
6	QTRAK-049	FIXED INFEED FLAP	1
7	QT160-4-037MK2	LOWER CONTROL BAR	1
8	QTRAK-080	CONTROL BAR LINK	2
9	QC160-4-10MK2	MK2 CONTROL BOX	1
10	QTRAK-023	OPERATOR PLATFORM	1

REV	MODIFICATION	DRN	APPRD	DATE

TOLERANCES:
LINEAR: 0.025mm
ANGULAR: 0.25°

FINISH:

	NAME	SIGNATURE	DATE	DEBUR AND BREAK SHARP EDGES
DRAWN	BGG		17/4/13	
CHK'D				
APPV'D	BGG			

TOLERANCES
MACHINED PARTS - +/- 0.025mm
FABRICATED PARTS - +/- 1.0 mm

MATERIAL:

TITLE:
INFEED CHUTE QUADTRAK

GreenMech LTD
The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG
Tel 01789 400044

WEIGHT:

DWG NO. A0

SCALE:1:10 SHEET 1 OF 1

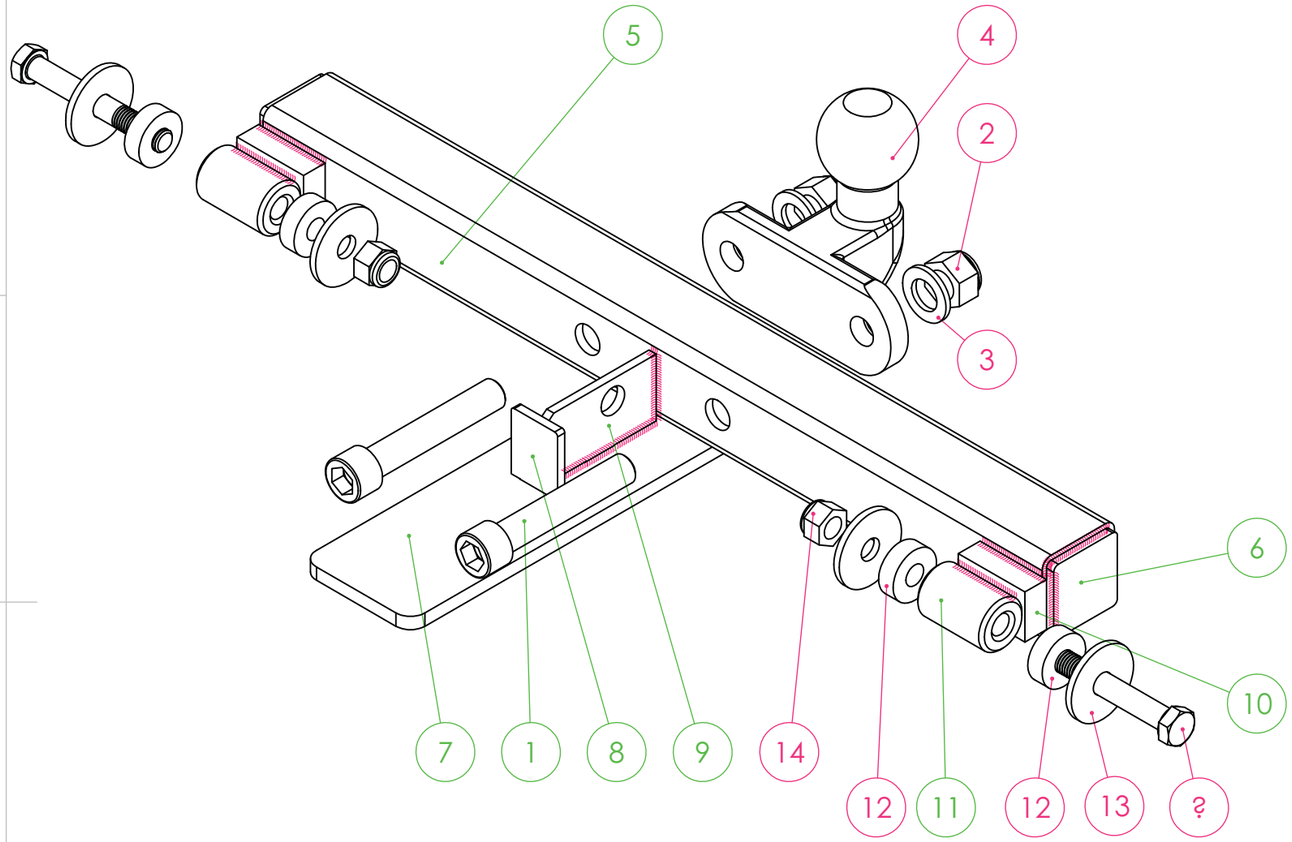
DO NOT SCALE - IF IN DOUBT ASK

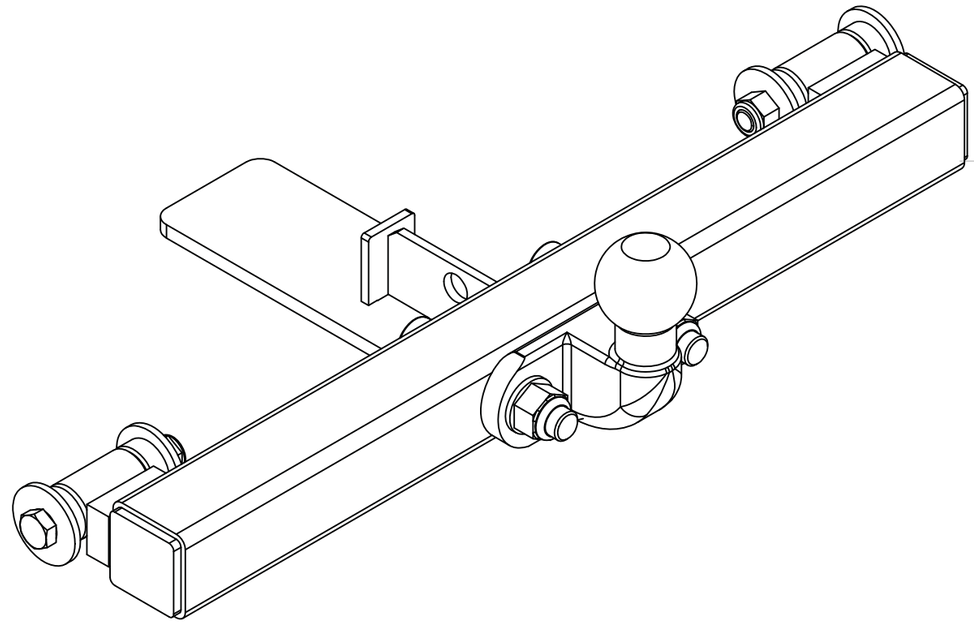
1ST ANGLE PROJECTION

DIMNS IN MM

PROGRAM No:-

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	71690	M16 x 90 Caphead bolt	2
2	91601	NYLOC NUT	2
3	91602 Washer	M16 A Washer	2
4	Ball hitch	50mm bolt on	1
5	QTRAK-110	Ball hitch beam	1
6	QTRAK-111	End cap	2
7	QTRAK-112	Support plate	1
8	QTRAK-113	Stop gusset	1
9	QTRAK-114	Brace plate	1
10	QTRAK-115	Pivot spacer	2
11	QTRAK-116	Pivot boss	2
12	QTRAK-117	Infill spacer	4
13	91202-R	M12 LARGE WASHER	4
14	91201	M12 NYLOC	2
15	91290	M12 x 90 bolt	2





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REV	MODIFICATION	DRN	APPD	DATE

TOLERANCES:
LINEAR: 0.025MM
ANGULAR: 0.25°

FINISH:

	NAME	QUANTITY	DATE
DRAWN	RVMR	1	30/04/2013
CHK'D			
APPV'D	BGG		

DEBUR AND BREAK SHARP EDGES

TOLERANCES
MACHINED PARTS +/- 0.025mm
FABRICATED PARTS +/-1.0mm

GreenMech Ltd

The Mill Industrial Park
Kings Coughton
Alcester
Warks B49 5QG Tel 01789 400044

Material & Thickness

see BOM

WEIGHT:
7850.19

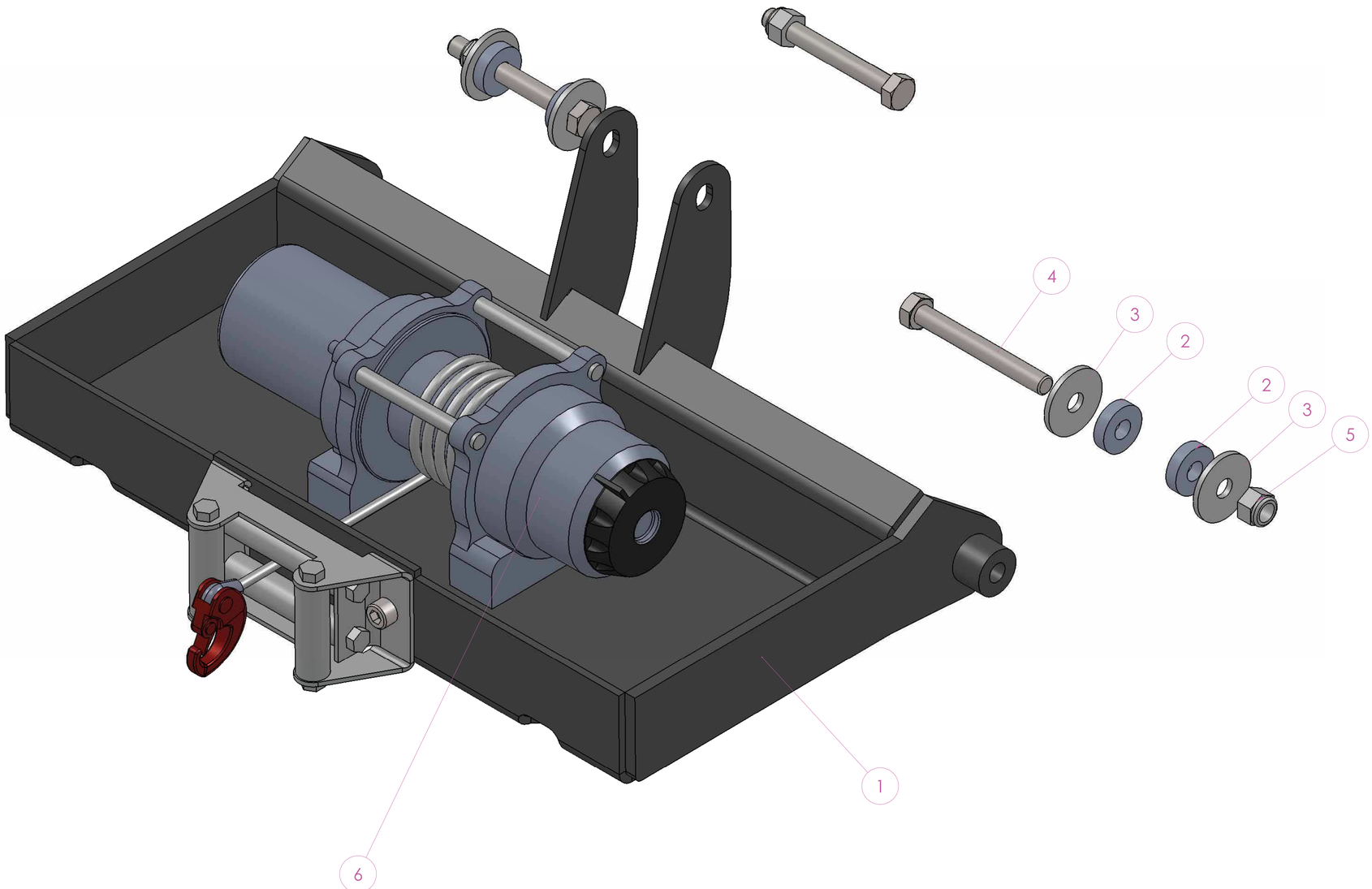
TITLE:
BALL HITCH BEAM

DWG NO. QTRAK-110

A3

SCALE:1:3

SHEET 2 OF 3



ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.
1	QTRAK-0125F	WINCH PLATE	1
2	QTRAK-084	SPACER	4
3	91202-R	M12 LARGE WASHER	4
4	912100	HEX HD BOLT	3
5	91201	NYLOC NUT	3
6	STC1623-1-150	RT30 WINCH KIT	1

WINCH KIT