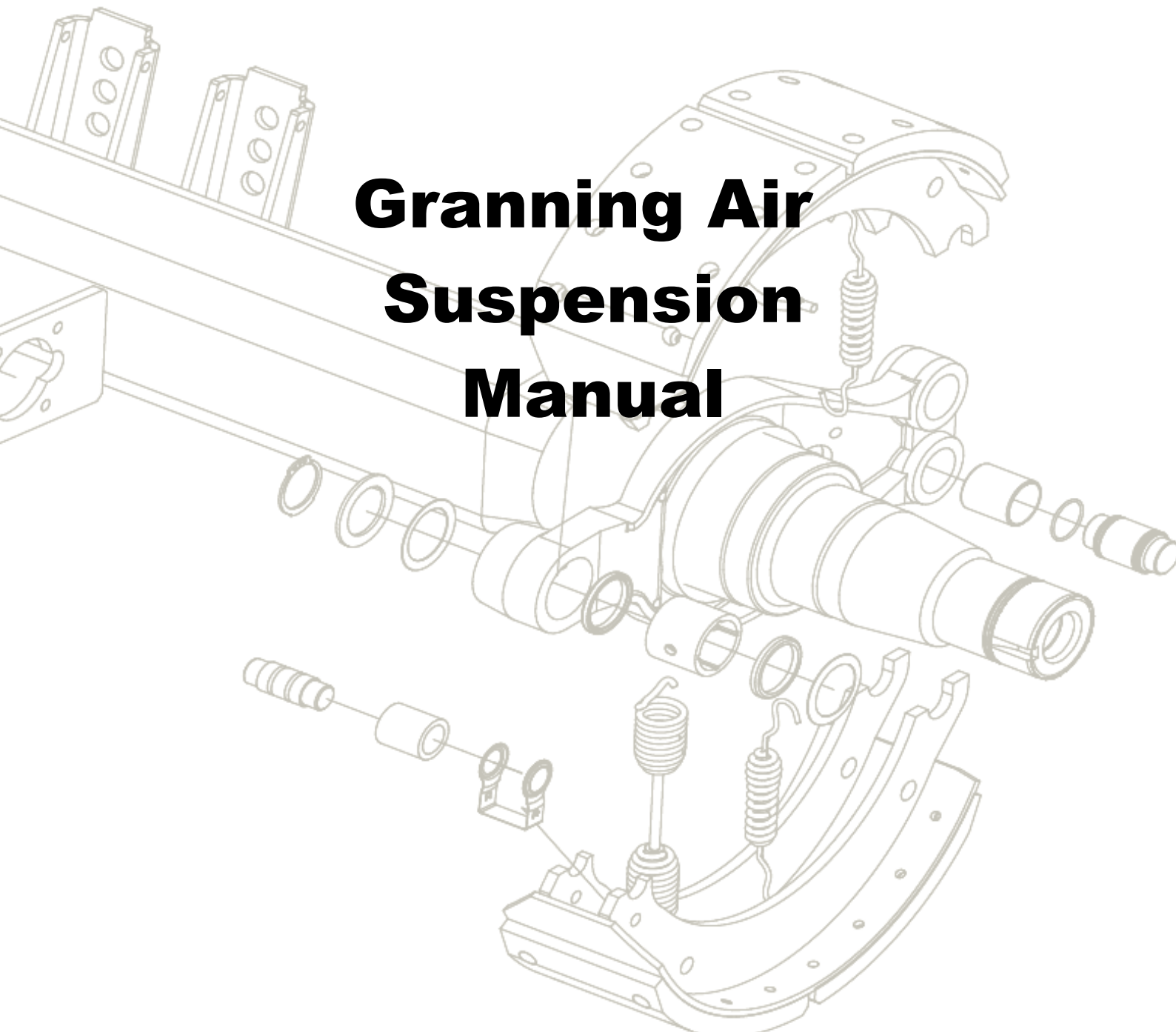
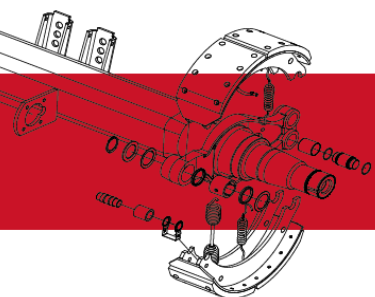




Granning Air Suspension Manual

Please use the below table to identify the Manual, Load pressure graph, Geometry and drawing for your suspension.

Suspension	Manual	Load/pressure graph	Geometry	Drawing
PTL30-105A	80138	80102	18700	18109
PTL21-85A	80138	80102	18700	18109
PTL21-105A	80138	80102	18700	18109
PTL26-105A	80138	80102	18700	18313
PTL26-125A	80138	80102	18700	18313
PTL26-85A	80138	80102	18700	18321
PTL30-85A	80138	80102	18700	18321
PTS38-80L	80138	80145	18756	18756
PTS34-85A	80138	80103	18700	18176
PTS34-105A	80138	80103	18700	18118
PTS43-85A	80138	80103	18700	18131
PTS43-105A	80138	80103	18700	18131
PTL17-105G	80138	80113	18700	18291
PTL17-125G	80138	80170	18176	18302
PTS38-85A	80138	80103	18700	18320
PTS38-105A	80138	80103	18700	18320
PTS38-125A	80138	80103	18700	18118
PTS43-125A	80138	80103	18700	18132



GRANNING LYNX
PT SERIES SUSPENSION
OWNER'S MANUAL

IMPORTANT
**THIS INFORMATION TO BE
PASSED TO THE OPERATOR**

Drawing 80138 (07/02)

SERVICING REQUIREMENTS

The following checks should be carried out as follows :-

- After first 1,500 km : Check 1
 - After 15,000 km or 1 month* : Checks 1, 2 & 3
 - Every 75,000 km or 3 months* : All checks required
- * whichever is sooner*

1) BOLT TORQUES

Check that all the suspension bolts are torqued to the prescribed levels as per the chart below. (See exploded diagram for the bolt locations).

During torquing it is important that all threads are CLEAN and OILED in order to achieve the correct bolt tension.

When torquing check for any signs of movement which may indicate slack bolts, possibly due to contaminated threads. Clean and oil such threads as necessary.

2) WELDING

Check all welds for signs of cracking. Particular attention should be paid to the axle saddle to axle welds and the tracking plate.

Check also welds on the front hangers and supports.

3) SHOCK ABSORBERS

Check for signs of leaking hydraulic fluid, and for deterioration of rubber bushes.

OWNER'S MANUAL

SERVICING REQUIREMENTS (cont)

4) AIR SPRINGS

Check for any signs of chaffing or wear, and for damage to pistons.

5) FRONT EYE BUSHES

Articulate the axle up and down and check for excessive movement due to worn bushes.

NB In the event of concern over any of the above, please refer to your GRANNING dealer.

NOTES ON SERVICING

a) BOLT TORQUES

Particular attention should be paid to the axle U-bolts and front eye bolts, movement in these areas can damage the suspension.

b) SHOCK ABSORBERS

Shock absorbers should be changed at the first sign of fluid leakage.

c) AIR SPRINGS

Properly used air springs can deliver over 750,000 km of service. Check regularly for signs of chaffing and correct any interferences promptly. Airsprings used in aggressive environments should be regularly cleaned and Inspected for wear. Any abrasive compounds such as sand etc. should be thoroughly cleaned off at the earliest opportunity. Failure to do so will result In premature failure of these components.

d) FRONT SPRING EYE BUSHES

Replace bushes, eye bolts and washers should signs of excessive movement occur.

BOLT TORQUE SETTINGS

ITEM N°	DESCRIPTION	BOLT DIA	TORQUE SETTING
7	Axle U-bolts	24 mm	850 Nm
3	Front Eye Bolts	30 mm	1075 Nm
	(Trailing Arm Centre Bolt)	12 mm	65 Nm
13	Shock Absorber Bolts (Lower)	20mm	400Nm
	Shock Absorber Bolts (Lower) PTL	24mm	570Nm
14	Shock Absorber Bolts (Upper)	20mm	400Nm
	Shock Absorber Bolts (Upper) PTL	24mm	570Nm
20	Air Spring Pedestal Bolts (Bottom)	12 mm	65 Nm
24	Air Spring Upper Pad Stud	12 mm	35 Nm

Trouble Shooting

Running Gear

Hard Pulling (grabbing)

PROBABLE CAUSE	REMEDY
Axle(s) out of alignment	Realign axles, check all suspension/axle components for damage ('U' bolts, pivot pins / bushes, shock absorbers etc.) and replace as required. Torque tighten all fixings.
Broken road spring / trailing arm	Replace.
Air suspension down one side	Refer to 'Air suspension faults'

Lift axle will not lift

PROBABLE CAUSE	REMEDY
Insufficient air supply	Build tractor air pressure up to 5.8bar (85psi)
Leak in system	Inspect for damage, check for leaks and rectify.
Faulty control valve	Replace.

Lift axle will not lower

PROBABLE CAUSE	REMEDY
Faulty control valve	Replace

Air Suspension

Air springs flat

PROBABLE CAUSE	REMEDY
Insufficient air supply	Build tractor air pressure up to 5.8bar (85psi).
Pressure protection / charging Valve	Should be set to supply 5bar (72psi), reset or replace.
Clogged in-line air filter	Clean or Replace element.

Trouble Shooting

Air Suspension

Air springs flat

PROBABLE CAUSE	REMEDY
Leak in air lines, connections or air spring assembly	Inspect for damage and test for leaks, locate and repair or replace.
Faulty levelling valve	Inspect, test and replace as required.
Faulty air load Sensing valve	Inspect, test and replace as required.
Faulty exhaust valve (if fitted)	Inspect, test and replace as required.
Faulty Raise / Lower valve (if fitted)	Inspect, test and replace as required.

Suspension deflates rapidly when parked

PROBABLE CAUSE	REMEDY
Leak in air lines, connections or air spring assemblies	Inspect for damage and test for leaks, locate and repair or replace.

Excessively worn air springs

PROBABLE CAUSE	REMEDY
Air spring contacting the frame, rims	Check for correct tyre sizes and inflation. Measure tyres or clearances, contact Granning.
Over extension of air springs	Adjust 'Ride Height'. Check variable height control (Raise / Lower) valve and set to 'Ride' position.
Operating with insufficient air pressure	Check items listed under 'Air springs flat'
Worn shock absorbers	Replace.

Trouble Shooting

Air Suspension

Air springs flat

PROBABLE CAUSE	REMEDY
Levelling valve linkage	Repair or replace disconnected or broken part.
Incorrectly set levelling valve	Adjust 'Ride Height'.
Incorrectly set variable height (Raise / Lower) valve, if fitted	Set to 'Ride' position.

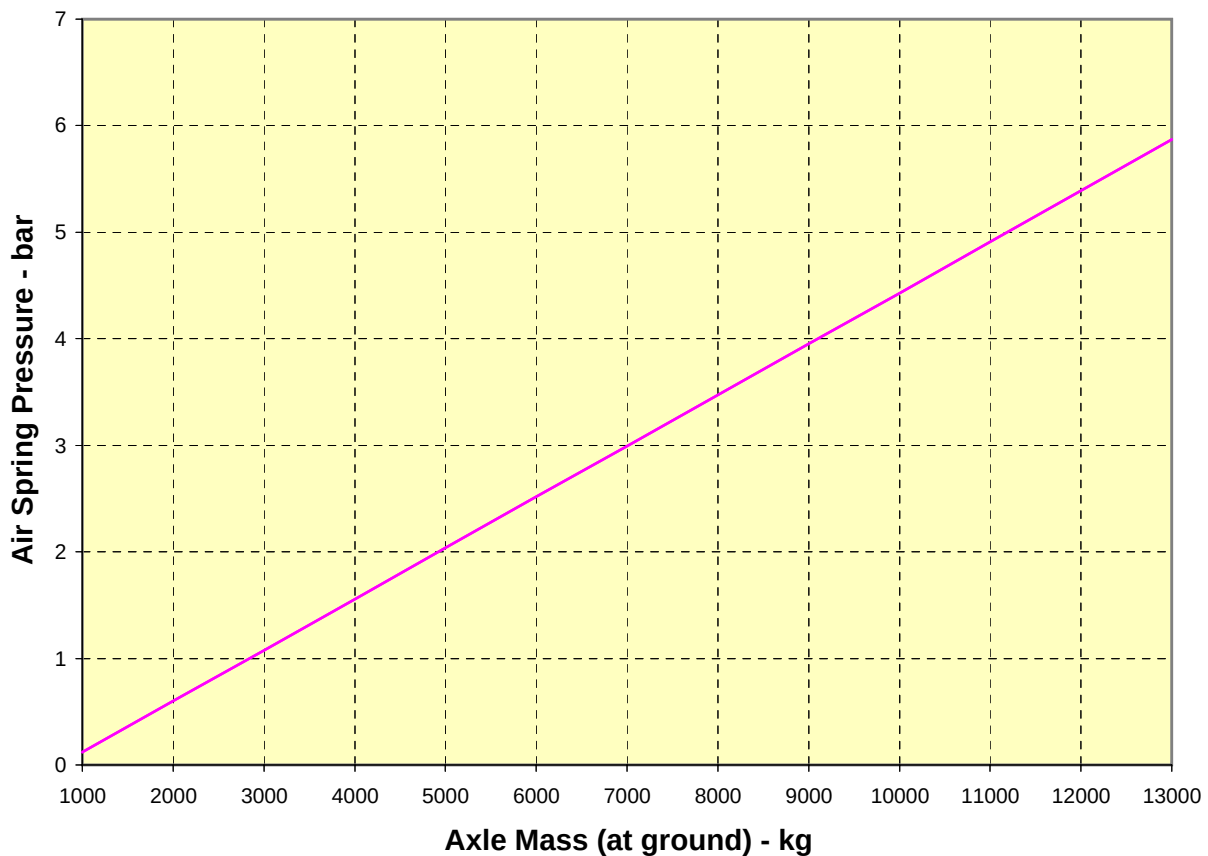
Trailer rides too low

PROBABLE CAUSE	REMEDY
Incorrectly set exhaust valve	Push knob in.

Excessive shock absorber wear

PROBABLE CAUSE	REMEDY
Faulty levelling valve (over active suspension)	Replace

Suspension Pressure Characteristic



Load Pressure Characteristic - Granning Suspension Models

PTL 21/26/30 - 105

This pressure to load characteristic refers to :

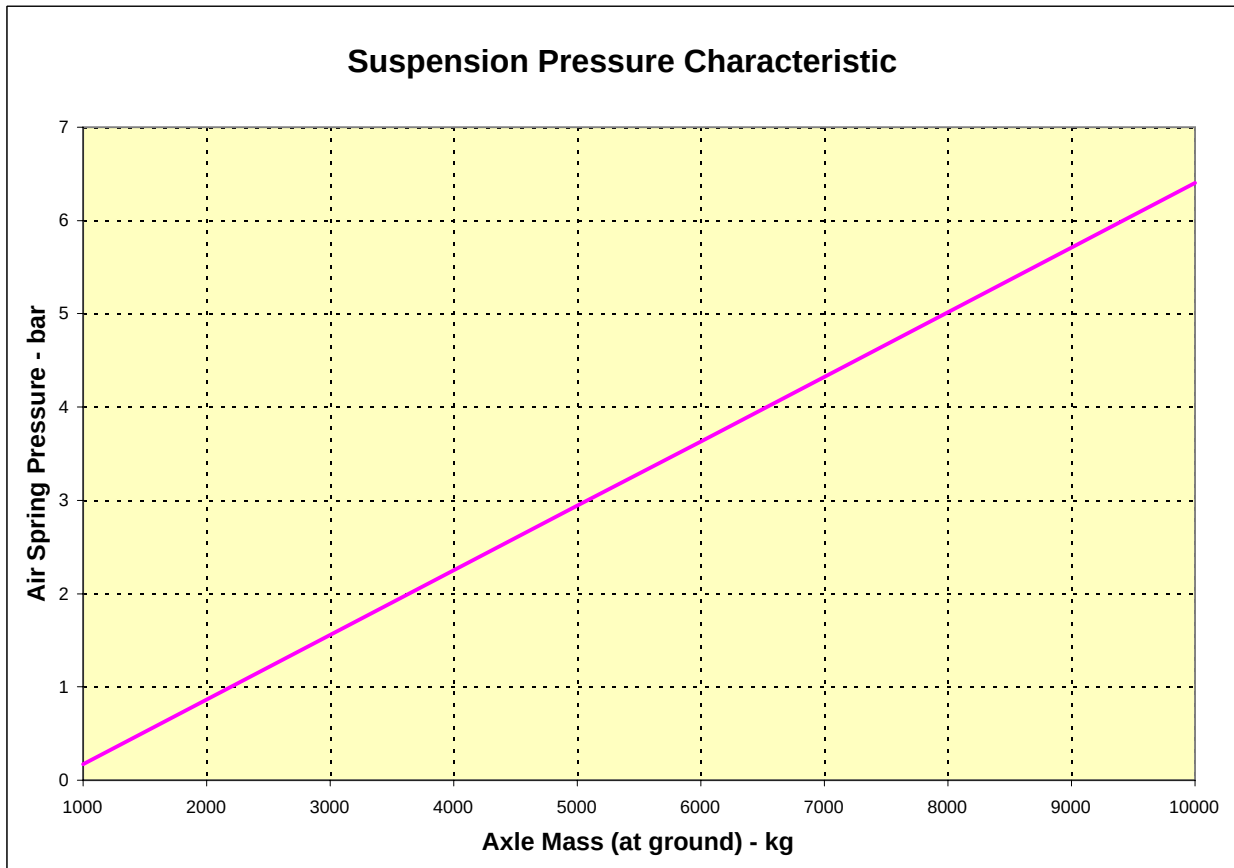
Suspension model	PTL 21-105 PTL 26-105 PTL 30-105 PTL26-85A	PTL30-85
Installation drawing no.	18109	
Maximum Design Axle Load	10500kg	8500kg

The above characteristic is intended as a guide, manufacturing tolerances on the componentry may cause individual suspensions to vary. To obtain a high degree of accuracy requires that the suspension be calibrated over a flat and accurate scale.

This characteristic assumes an unsprung mass of 750kg.

SUSPENSION
CHARACTERISTIC

1000	0.119758	DIMENSION L₁ (mm)	527
2000	0.59879	DIMENSION L₂ (mm)	924
3000	1.077823		
4000	1.556855	SPRING RATE :	0.570346
5000	2.035887		
6000	2.51492		
7000	2.993952	AIRSPRING TYPE :	IT19F-7
8000	3.472984		
9000	3.952017	MAX LOAD (N)	40180
10000	4.431049	MIN LOAD (N)	16820
11000	4.910081	MAX PRESS (bar)	7
12000	5.389114	MIN PRESS (bar)	3
13000	5.868146		
			5840 (N/bar)
			0.000171 (bar/N)



Load Pressure Characteristic - Granning Suspension Models

PTS 38 - 80L

This pressure to load characteristic refers to :

Suspension model **PTS 38 - 80L**

Installation drawing no. **18176**

Maximum Design Axle Load **8000kg**

The above characteristic is intended as a guide, manufacturing tolerances on the componentry may cause individual suspensions to vary. To obtain a high degree of accuracy requires that the suspension be calibrated over a flat and accurate scale.

This characteristic assumes an unsprung mass of 750kg.

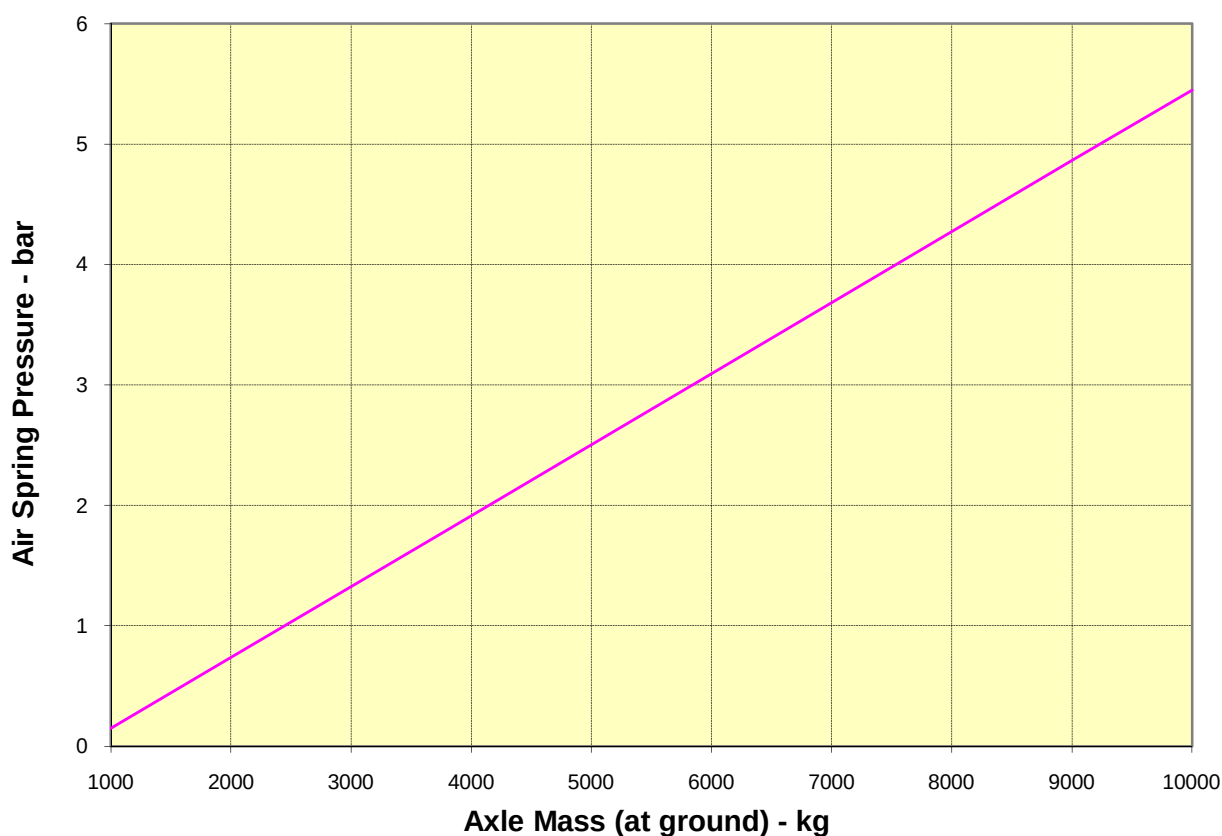
Drawing No 80145 © 25 May 99

SUSPENSION
CHARACTERISTIC

1000	0.172989	DIMENSION L₁ (mm)	515
2000	0.864946	DIMENSION L₂ (mm)	885
3000	1.556903		
4000	2.24886	SPRING RATE :	0.581921
5000	2.940817		
6000	3.632773		
7000	4.32473	AIRSPRING TYPE :	IT15MP-7
8000	5.016687		
9000	5.708644	MAX LOAD (N)	29500
10000	6.400601	MIN LOAD (N)	13000
11000	7.092558	MAX PRESS (bar)	7
		MIN PRESS (bar)	3
			4125 (N/bar)
			0.000242 (bar/N)

515	29500
885	1300
	7
	3

Suspension Pressure Characteristic



Load Pressure Characteristic - Granning Suspension Models

PTS 34/38/43 - 85/95

This pressure to load characteristic refers to :

Suspension model	PTS 34 - 85	PTS 34 - 95
	PTS 38 - 85	PTS 38 - 95
	PTS 43 - 85	PTS 43 - 95
Installation drawing no.	18105	18105
Maximum Design Axle Load	8500kg	9500kg

The above characteristic is intended as a guide, manufacturing tolerances on the componentry may cause individual suspensions to vary. To obtain a high degree of accuracy requires that the suspension be calibrated over a flat and accurate scale.

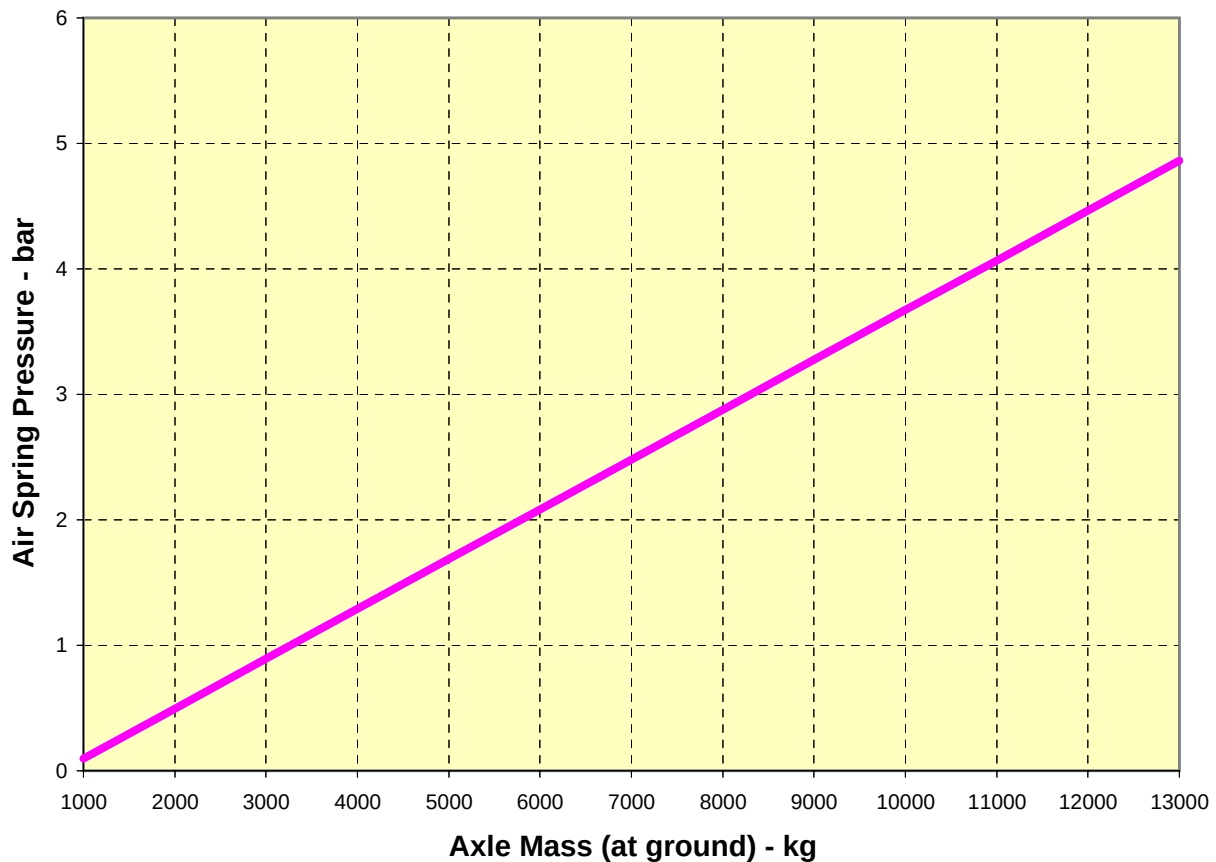
This characteristic assumes an unsprung mass of 750kg.

Drawing No 80103 © 24 Jan 95

SUSPENSION
CHARACTERISTIC

1000	0.147317	DIMENSION L₁ (mm)	527
2000	0.736585	DIMENSION L₂ (mm)	924
3000	1.325852		
4000	1.91512	SPRING RATE :	0.570346
5000	2.504388		
6000	3.093656		
7000	3.682924	AIRSPRING TYPE :	IT15M-9
8000	4.272191		
9000	4.861459	MAX LOAD (N)	32350
10000	5.450727	MIN LOAD (N)	13360
11000	6.039995	MAX PRESS (bar)	7
		MIN PRESS (bar)	3
			4747.5 (N/bar)
			0.000211 (bar/N)

Suspension Pressure Characteristic



Load Pressure Characteristic - Granning Suspension Models

PTL 17 - 105 A & 125 A

This pressure to load characteristic refers to :

Suspension model **PTL 17-105/125 A**

Installation drawing no. **18134 / 18232**

Maximum Design Axle Load **10500kg / 12500kg**

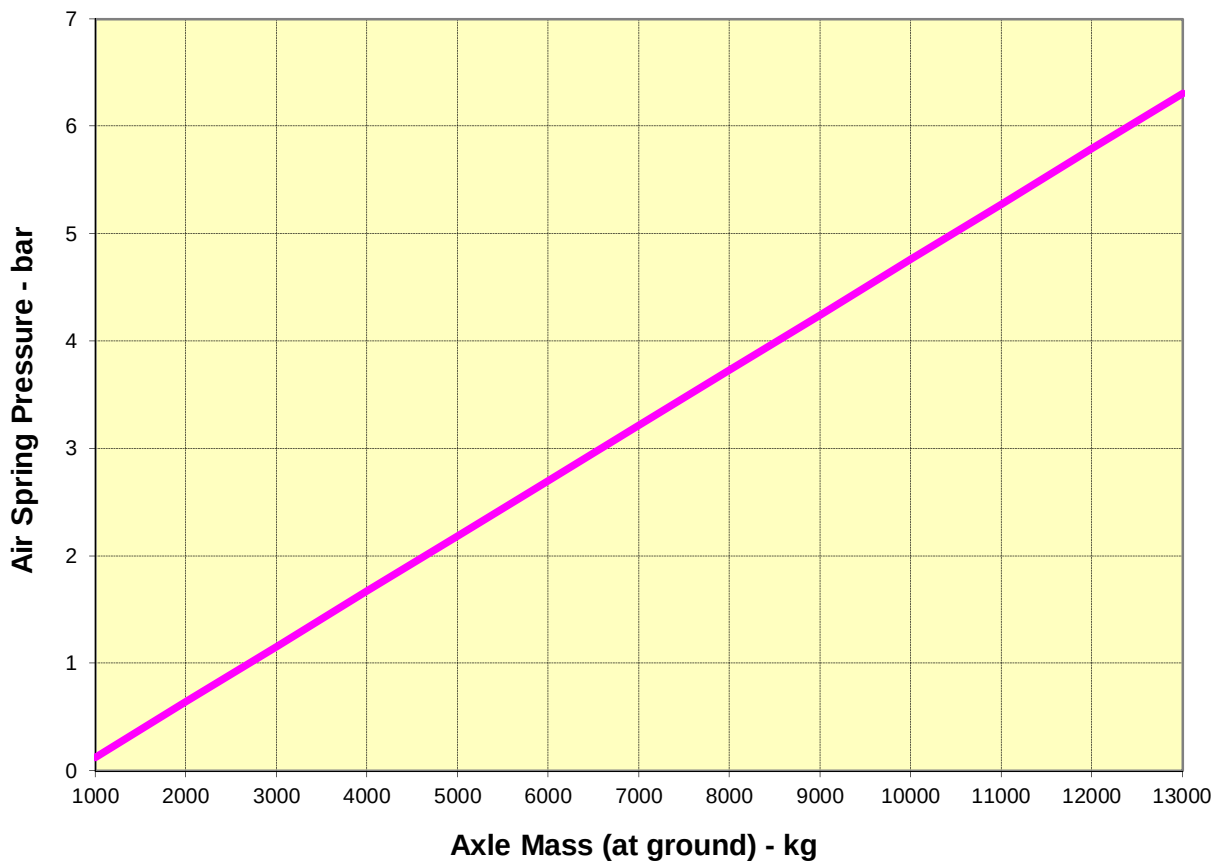
The above characteristic is intended as a guide, manufacturing tolerances on the componentry may cause individual suspensions to vary. To obtain a high degree of accuracy requires that the suspension be calibrated over a flat and accurate scale.

This characteristic assumes an unsprung mass of 750kg.

SUSPENSION
CHARACTERISTIC

1000	0.099238	DIMENSION L₁ (mm)	527
2000	0.496189	DIMENSION L₂ (mm)	913
3000	0.89314		
4000	1.290091	SPRING RATE :	0.577218
5000	1.687042		
6000	2.083994		
7000	2.480945	AIRSPRING TYPE :	IT19F-5
8000	2.877896		
9000	3.274847	MAX LOAD (N)	48460
10000	3.671798	MIN LOAD (N)	19930
11000	4.068749	MAX PRESS (bar)	7
12000	4.4657	MIN PRESS (bar)	3
13000	4.862652		
14000	5.259603		7132.5 (N/bar)
15000	5.656554		0.00014 (bar/N)
16000	6.053505		

Suspension Pressure Characteristic



Load Pressure Characteristic - Granning Suspension Models

PTL 17 - 105 G & 125 G Dynamic

This pressure to load characteristic refers to :

Suspension model **PTL 17-105/125 G**

Installation drawing no. **18134 / 18232**

Maximum Design Axle Load **10500kg / 12500kg**

The above characteristic is intended as a guide, manufacturing tolerances on the componentry may cause individual suspensions to vary. To obtain a high degree of accuracy requires that the suspension be calibrated over a flat and accurate scale.

This characteristic assumes an unsprung mass of 750kg.

Drawing No 80170 10 Jun 10

SUSPENSION
CHARACTERISTIC

1000	0.128693	DIMENSION L₁ (mm)	527
2000	0.643467	DIMENSION L₂ (mm)	913
3000	1.15824		
4000	1.673014	SPRING RATE :	0.577218
5000	2.187787		
6000	2.702561		
7000	3.217334	AIRSPRING TYPE :	Goodyear
8000	3.732108		
9000	4.246881	MAX LOAD (N)	40000 Dynamic
10000	4.761655	MIN LOAD (N)	18000 Dynamic
11000	5.276428	MAX PRESS (bar)	7
12000	5.791202	MIN PRESS (bar)	3
13000	6.305975		
14000	6.820749		5500 (N/bar)
15000	7.335522		0.000182 (bar/N)
16000	7.850295		

PT SUSPENSION GEOMETRY

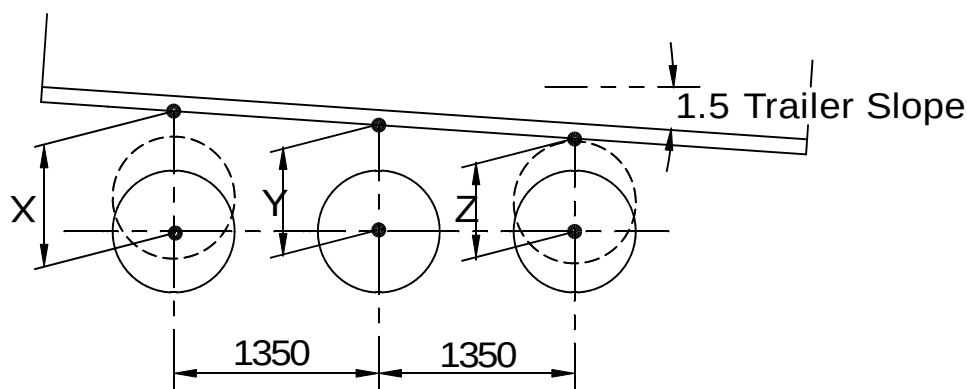
MODEL	RIDE HEIGHT STANDARD	RIDE HEIGHT MAXIMUM	RIDE HEIGHT MINIMUM	JOUNCE ▲	REBOUND ▼	PEDESTAL SIDE LIFT
PTL21	205 - - -	- 205 - -	- - 170 * 160	110 110 65 55	65 65 110 120	11914
PTL26	255 - -	- 255 -	- - 210	110 110 65	65 65 110	11914
PTL30	300 - -	- 300 -	- - 255	110 110 65	65 65 110	11914
PTS34	340 - -	- 370 -	- - 315	125 155 100	90 60 115	12163
PTS38	380 - -	- 410 -	- - 355	125 155 100	90 60 115	12164
PTS43	430 - -	- 460 -	- - 405	125 155 100	90 60 115	12165

NOTE: All dimensions are in millimetres (mm)

Granning UK Ltd.

* Only with approval from Granning Engineering

EXAMPLE



X = 455 - Use PTS43 suspension

Front axle lift available 150 mm

Y = 430 - Use PTS43 suspension

Z = 405 - Use PTS43 suspension

Rear axle lift available 100 mm

PT(D) SUSPENSION GEOMETRY

NOTE: All dimensions are in millimetres (mm)

MODEL	RIDE HEIGHT			JOUNCE ▲	REBOUND ▼	AXLE LOAD (KG)	AIR BAG OFFSET & DIAMETER	HANGER PART No. DIM 'H'	PEDESTAL PART No. DIM'A'		AIR SPRING TYPE SADDLE SHOCK BOLT
	STD	MAX	MIN						AIRSPRING	SIDE LIFT	
PTL16	160	—	—	65	105	9000	0 300	13133/4 235	NONE	NOT APPLICABLE USE CENTRE LIFT.	1T15MP-7 C/PLATE
	—	200	—	105	65						
	—	—	160	65	105						
PTL19	190	—	—	85	70	10500	0/70 360	12457/8 160	11914 PLATE ONLY		1T19F-7 C/PLATE
	—	200	—	95	60						
	—	—	170	65	90						
PTL21	210	—	—	100	86	10500	0/70 360	13040/1 180	11914 PLATE ONLY		1T19F-7 C/PLATE
	—	230	—	120	66						
	—	—	190	80	106						
PTL23	230	—	—	85	70	10500	0/70 360	12455/6 210	13113 60		1T19F-7 C/PLATE
	—	240	—	95	60						
	—	—	215	65	85						
PTL27	280	—	—	85	70	10500	0/70 360	12453/4 250	13114 100		1T19F-7 C/PLATE
	—	290	—	95	60						
	—	—	265	65	90						
PT 38 - 80 L	380	—	—	103	111	9000	0 300	13040/1 180	NONE	DUAL SIDE LIFT	IT15MP-7 HOLE Ø25
	—	400	—	123	91						
	—	—	360	83	123						
PT 38 - 80 LX STEER	380	—	—	103	111	9000	0 300	13040/1 180	NONE	NONE	IT15MP-7 HOLE Ø25
	—	400	—	123	91						
	—	—	360	83	123						
PTS34	340	—	—	95	85	10500	0/70 360	12217 305	13113 60	USE CANTILEVER SIDE LIFT OR CENTRE LIFT	1T19F-11 HOLE Ø20
	—	365	—	120	60						
	—	—	335	90	90						
PTS38	380	—	—	95	85	10500	0/70 360	12218 345	13114 100		1T19F-11 HOLE Ø20
	—	405	—	120	60						
	—	—	350	90	90						
PTS43	430	—	—	95	85	10500	0/70 360	12219 395	13115 150		1T19F-11 HOLE Ø20
	—	455	—	120	60						
	—	—	400	90	90						
PTS34X DISCS	340	—	—	100	100	10500	0/70 360	13175/6 305	13114 100		1T19F-11 HOLE Ø20
	—	365	—	120	60						
	—	—	335	90	90						
PTS38X DISCS	380	—	—	105	88	10500	0/70 360	12218 345	13179 130		1T19F-11 HOLE Ø20
	—	400	—	125	68						
	—	—	360	85	108						

Level Trailers- Fit same suspension on all Axles.

Note: Sloping Tipper has level bottom flange over suspension.

SLOPING TRAILERS with up to 2 degree slope, drop one suspension size on rear axle. For greater slopes consult Granning engineering dept.

TIPPERS, TANKERS, & ALL SPECIALS. ALWAYS FIT WRAPPERS WHERE POSSIBLE.

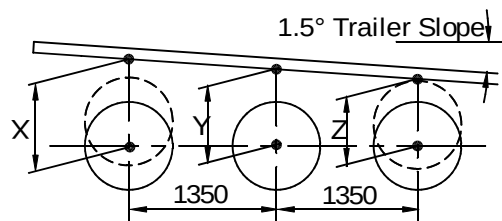
X = 455 - Use PTS43 suspension

Y = 430 - Use PTS43 suspension

Z = 405 - Use PTS38 suspension

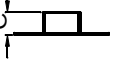
Front axle lift available 120mm

Rear axle lift available 95mm



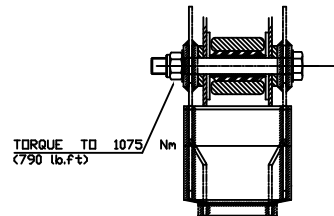
SUSPENSION GEOMETRY

NOTE: All dimensions are in millimetres (mm)

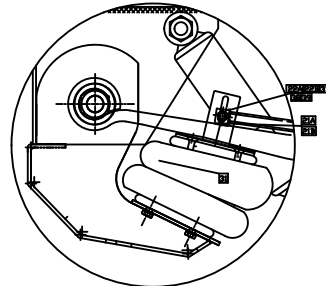
MODEL	RIDE HEIGHT			JOUNCE ▲	REBOUND ▼	STANDARD RIDE HEIGHTS AVAILABLE	HANGER DIM "A" 	HANGER PART NUMBER	PEDESTAL DIM "C" 	PEDESTAL PART NUMBER	LIFT KIT TYPE	AIR SPRING TYPE	AXLE LOAD (KG)	AIR BAG OFFSET & DIAMETER	APPLICATION	DRAWING REFERENCE
	STD	MAX	MIN													
U.A.HE. .5.30. 180.20	180	—	—	?	?	180mm 205mm 230mm 255mm	285mm 310mm 335mm 360mm	? ? ? ?	50mm 75mm 100mm ?	? ? ? ?	CENTRE LIFT ARM OR CENTRE PISTON LIFT	1T15MP-7	9000	20 300	8T / AXLE LOWLOADER	?
U.A.HD .5.30. 375.20	375	—	—	?	?	375mm 400mm 425mm 450mm	285mm 310mm 335mm 360mm	? ? ? ?	----- 30mm 50mm 75mm	? ? ? ?	CENTRE LIFT ARM OR PART NO ?????	IT15MP-7	9000	20 300	8T / AXLE STD TRAILER	?
L.A.EB.5 .36.185. 50/90	185	—	—	?	?	185mm 215mm 240mm 265mm 290mm	310mm 335mm 360mm 390mm 410mm	? ? ? ? ?	----- 30mm 50mm 75mm 100mm	? ? ? ? ?	CENTRE LIFT ARM OR CENTRE PISTON LIFT	?	10500	50/90 360	10.5T / AXLE STEPFRAME LOWLOADER	?
L.A.EB.5 .36.400. 50/90	400	—	—	?	?	400mm 425mm 450mm 475mm	285mm 310mm 335mm 360mm	? ? ? ?	----- 30mm 50mm 75mm	? ? ? ?	CENTRE LIFT ARM OR PART NO ?????	?	10500	50/90 360	10.5T / AXLE STD TRAILER NOT TIPPER	?
K.A.EP. 5.36.475 .50/90	475	—	—	?	?	425mm 450mm 475mm 500mm	310mm 335mm 360mm 390mm	? ? ? ?	----- 30mm 50mm 75mm	? ? ? ?	CENTRE LIFT ARM OR PART NO ?????	?	10500	50/90 360	10.5T / AXLE TIPPER	?

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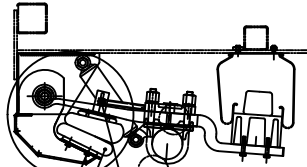
OPTIONAL L702PTSL BOLT ON TWIN LIFT ASSEMBLY



SECTION THROUGH PIVOT EYE BUSH
NOT TO SCALE



LIFT SPRING DETAIL
NOT TO SCALE



TORQUE TO 25 Nm (20 lb.ft)

TORQUE TO 40 Nm (30 lb.ft)

NOTE 1: PART NUMBER REFER TO L702PTSL BOLT ON LIFT ASSEMBLY
NOTE 2: FIT ONE ASSEMBLY AS SHOWN TO EACH HANGER OF LIFTING AXLE

REV	DESCRIPTION	DATE
1	ISSUE	10/10/12
2	REVISION	10/10/12
3	REVISION	10/10/12
4	REVISION	10/10/12
5	REVISION	10/10/12
6	REVISION	10/10/12
7	REVISION	10/10/12
8	REVISION	10/10/12
9	REVISION	10/10/12
10	REVISION	10/10/12

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MATERIAL

SEE BILL OF MATERIALS

FINISH

INSTALLATION

PTS 38 - 80L

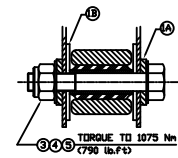
DRAWING NO. 18176

SHEET 3 OF 3 A1

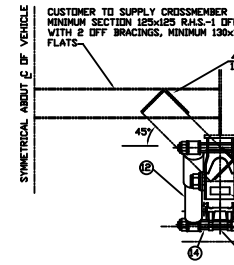
DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY LOAD AT LOCATION
ORIGINAL FRAME SIZE 809mm x 562mm	UNSPECIFIED TOLERANCES: NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0° - 3'

ITEM	PART NO.	DESCRIPTION	NOTES
1	CALLAN	BILL OF MATERIALS	
2	DATE 10/10/12	CHECKED	
3	SCALE 1:1	VELOCITY	
4	VELOCITY	ESTIMATED ACTUAL	
5	VELOCITY	ESTIMATED ACTUAL	
6	VELOCITY	ESTIMATED ACTUAL	
7	VELOCITY	ESTIMATED ACTUAL	
8	VELOCITY	ESTIMATED ACTUAL	
9	VELOCITY	ESTIMATED ACTUAL	
10	VELOCITY	ESTIMATED ACTUAL	

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SECTION THROUGH PIVOT EYE BUSH

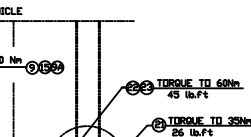


SYMMETRICAL ABOUT C OF VEHICLE

4 PLACES 10/1/100

DO NOT SCALE IF IN DOUBT ASK

DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY LOAD AT LOCATION
ORIGINAL FRAME SIZE 809mm x 562mm	UNSPECIFIED TOLERANCES: NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0° - 3'

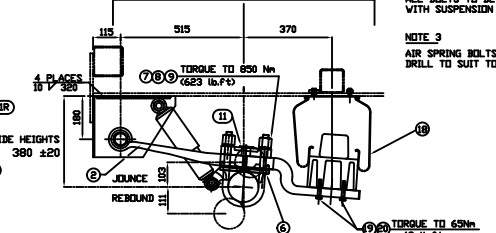


SYMMETRICAL ABOUT C OF VEHICLE

TORQUE TO 300 Nm (223 lb.ft)

TORQUE TO 60 Nm (45 lb.ft)

NOTE 1: AXLE TUBE SHOULD BE PRE-HEATED IF AMBIENT TEMPERATURE IS LESS THAN 68°F, 20°C.
NOTE 2: ALL BOLTS TO BE TORQUED WITH SUSPENSION IN THE RIDE HEIGHT POSITION.
NOTE 3: AIR SPRING BOLTS DIRECT TO FLANGE. DRILL TO SUIT TOP PLATE.



4 PLACES 10/1/100

4 PLACES 10/1/100

4 PLACES 10/1/100

4 PLACES 10/1/100

4 PLACES 10/1/100

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4 PLACES 10/1/100

4 PLACES 10/1/100

REV	DESCRIPTION	DATE
1	ISSUE	10/10/12
2	REVISION	10/10/12
3	REVISION	10/10/12
4	REVISION	10/10/12
5	REVISION	10/10/12
6	REVISION	10/10/12
7	REVISION	10/10/12
8	REVISION	10/10/12
9	REVISION	10/10/12
10	REVISION	10/10/12

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MATERIAL

SEE BILL OF MATERIALS

FINISH

INSTALLATION

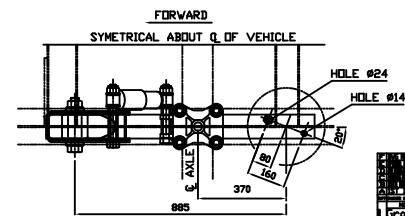
PTS 38 - 80L

DRAWING NO. 18176

SHEET 1 OF 3 A1

DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY LOAD AT LOCATION
ORIGINAL FRAME SIZE 809mm x 562mm	UNSPECIFIED TOLERANCES: NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0° - 3'

ITEM	PART NO.	DESCRIPTION	NOTES
1	SCOTT	BILL OF MATERIALS	
2	DATE 07DEC1998	CHECKED	
3	SCALE 1:1	VELOCITY	
4	VELOCITY	ESTIMATED ACTUAL	
5	VELOCITY	ESTIMATED ACTUAL	
6	VELOCITY	ESTIMATED ACTUAL	
7	VELOCITY	ESTIMATED ACTUAL	
8	VELOCITY	ESTIMATED ACTUAL	
9	VELOCITY	ESTIMATED ACTUAL	
10	VELOCITY	ESTIMATED ACTUAL	



FORWARD

SYMMETRICAL ABOUT Q OF VEHICLE

HOLE #24

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

HOLE #14

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HOLE #14

HOLE #14

HOLE #14

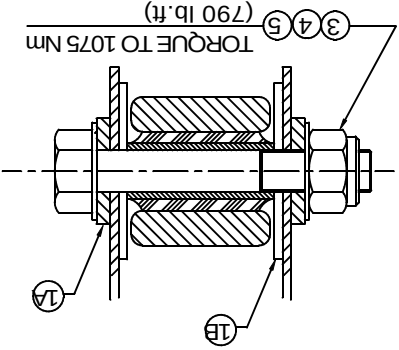
DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY LOAD AT LOCATION
ORIGINAL FRAME SIZE 809mm x 562mm	UNSPECIFIED TOLERANCES: NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0° - 3'

REV	DESCRIPTION	DATE
1	ISSUE	10/10/12
2	REVISION	10/10/12
3	REVISION	10/10/12
4	REVISION	10/10/12
5	REVISION	10/10/12
6	REVISION	10/10/12
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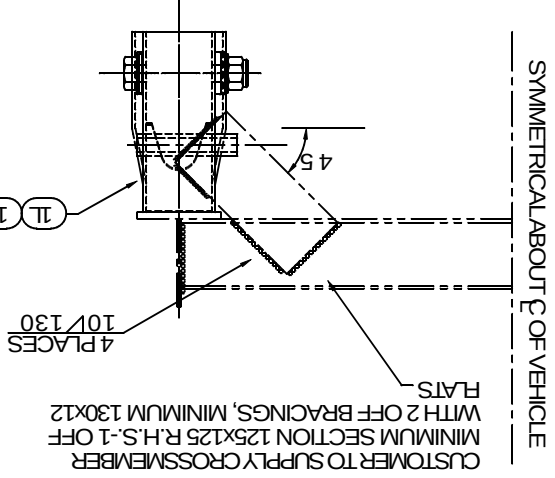
SYMMETRICAL ABOUT C OF VEHICLE
TORQUE TO 60Nm
45 lb.ft

CUSTOMER TO SUPPLY
PACKER 120x60 FLANGE
THICKNESS WELDED TO
CROSSMEMBER
TORQUE TO 35Nm
26 lb.ft

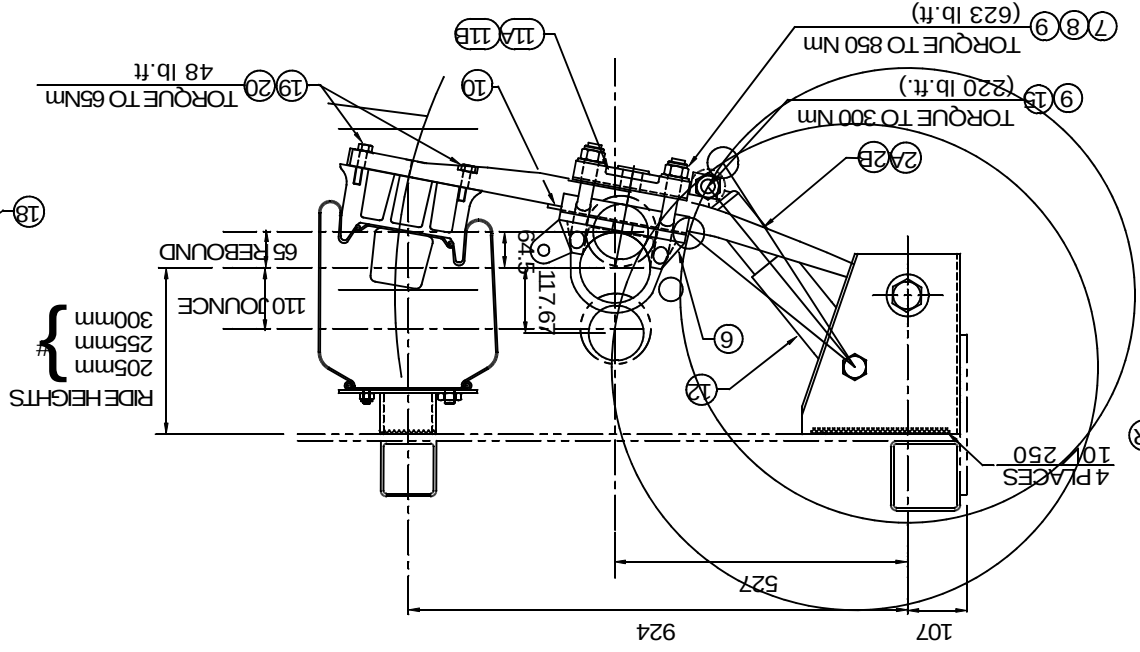
MIN TYRE CLEARANCE



SECTION THROUGH PIVOT EYE BUSH



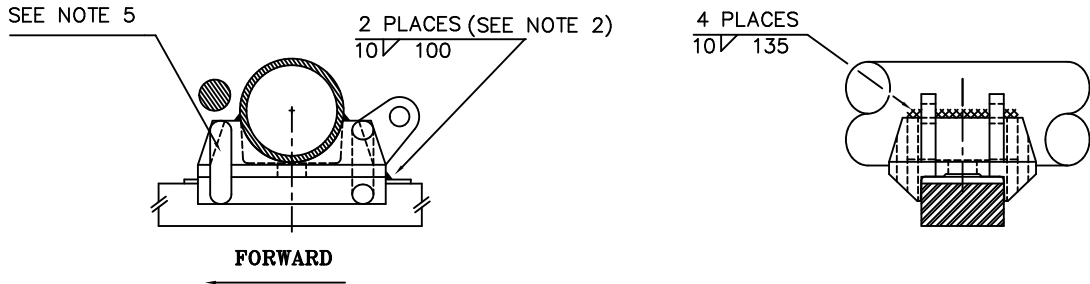
CUSTOMER TO SUPPLY CROSSMEMBER
MINIMUM SECTION 125x125 R.H.S. - 1 OFF
WITH 2 OFF BRACINGS, MINIMUM 130x12
FLATS



NOTES
1. # FOR SUSPENSION GEOMETRY SEE DWG NO. 18700
2. SEE SHEET 2 FOR ALTERNATIVE SADDLE LOCATION.

ALL DIMENSIONS ARE IN MILLIMETRES		DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE	
COMPONENTS TO CARRY UNIFORM TOLERANCES		DRAWN BY: R. COOKE		DATE: 28 APR 94	
TWO ANGULAR		CHECKED: M.P.		SCALE: 1:5	
ONE NO DECIMALS		AUTHORISED: P.L.B.		SUBS: 1.5	
TWO ANGULAR		BILL OF MATERIALS		PTL SUSPENSION RANGE	
TWO ANGULAR		FINISH		INSTALLATION	
TWO ANGULAR		SEE BILL OF MATERIALS		DRAWING NO. 18109	
TWO ANGULAR		MODIFICATIONS		SHEET 1 OF 2	

SADDLE WELDMENT



NOTE 1

AXLE TUBE SHOULD BE PRE-HEATED
IF AMBIENT TEMPERATURE IS LESS
THAN 68°F, 20°C.

NOTE 2

WELD AFTER TRACKING AXLE.
PROTECT SPRING BEAM FROM
ARCING AND SPLATTER.

NOTE 3

FOR ITEMS MARKED ○ SEE B.O.M. L602PTL*

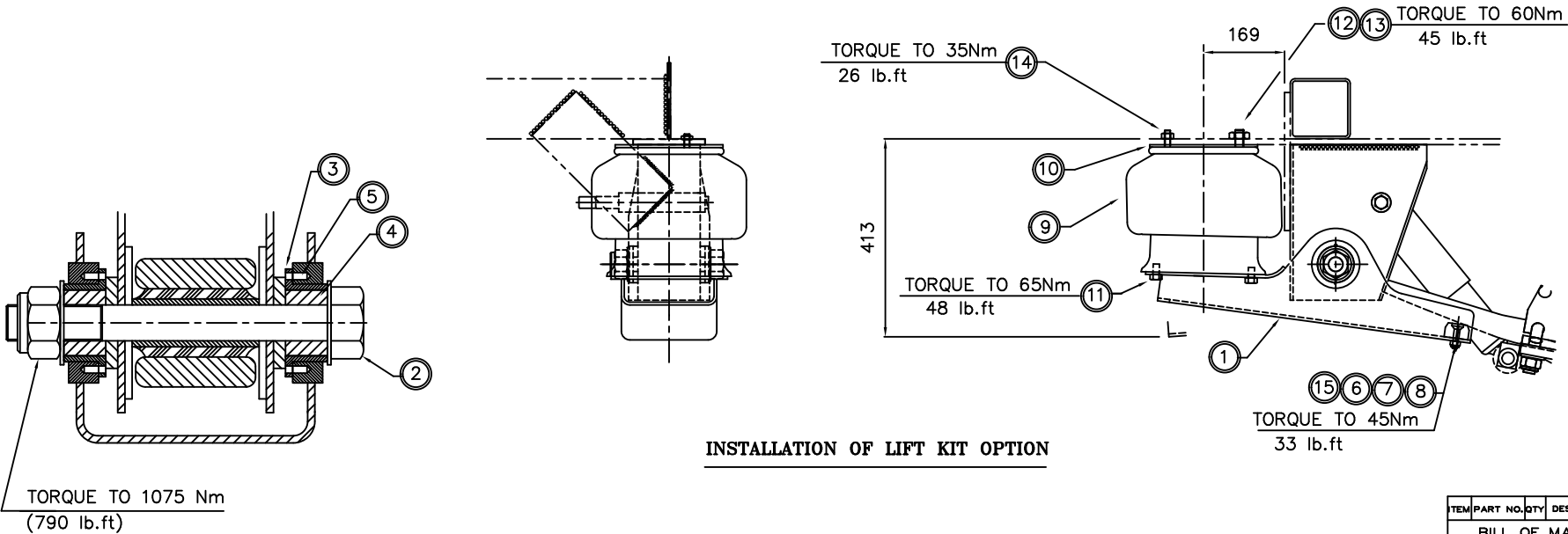
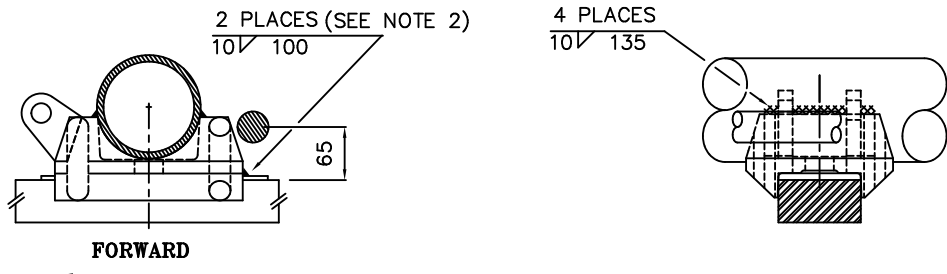
NOTE 4

ALL BOLTS TO BE TORQUED
WITH SUSPENSION IN THE RIDE HEIGHT POSITION

NOTE 5

WHEN FITTING SUSPENSION TO AXLES WITH
310 x 190 BRAKES USE AXLE SADDLE PART No. 12342

ALTERNATIVE WELDMENT FOR BMX AXLE



INSTALLATION OF LIFT KIT OPTION

SECTION THROUGH PIVOT EYE BUSH

D	DWG REVISED	-	ENGJF	11 JUL 2012
C	ALTERNATIVE SADDLE WELDMENT ADDED	-	ENGDS	27 NOV 2012
B	REDRAWN	-	ENGRC	28 SEP 1994
A	1ST ISSUE	-	ENGMPQ	2 FEB 1989

MODIFICATIONS

GRANNING
LYNX
Granning UK Ltd.
Unit 37, Melford Court, Hardwick Grange,
Warrington, Cheshire. WA1 4RZ, England.

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MATERIAL

SEE BILL OF MATERIAL
FINISH

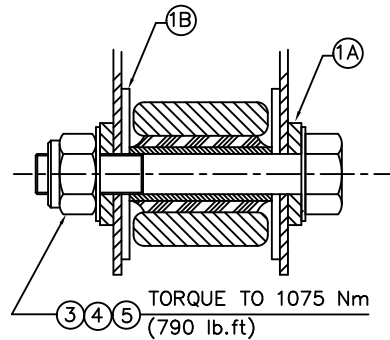
	FINISH
	TITLE

INSTALLATION
PTL SUSPENSION RANCH

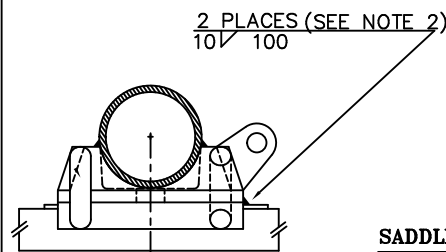
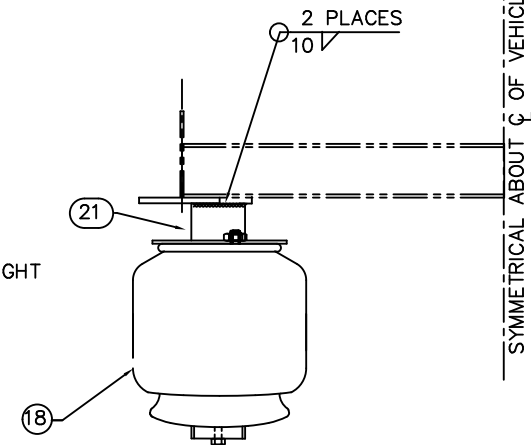
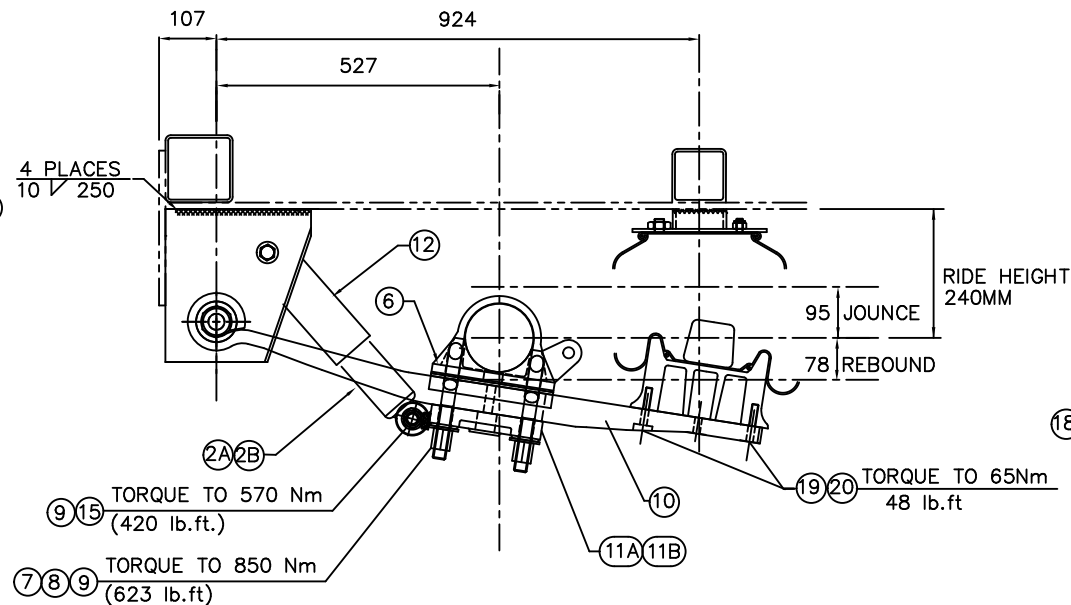
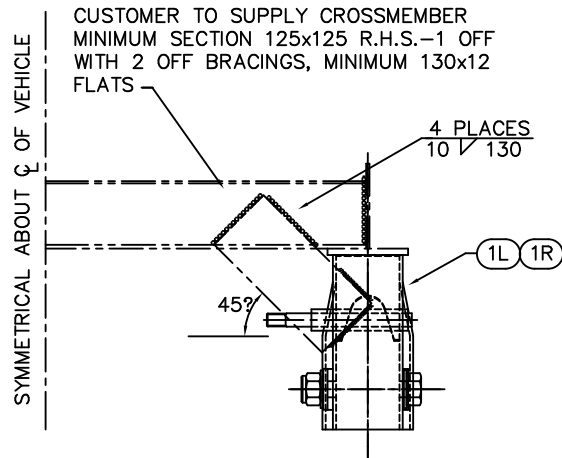
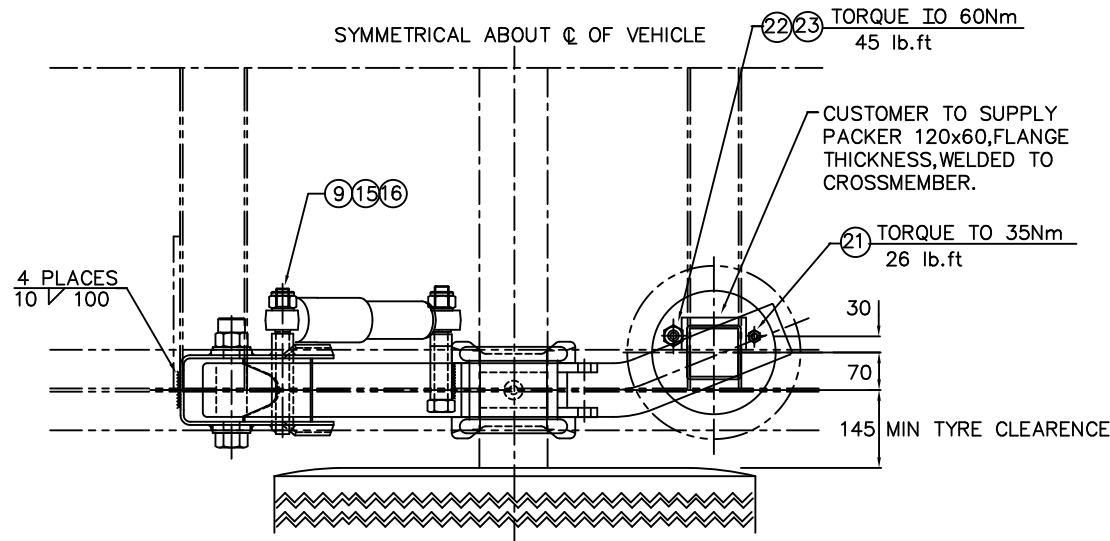
DRAWING NO. 1810

ITEM	PART NO.	QTY	DESCRIPTION	NOTES	DISPOSITION
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DRAWN BY			AUTHORISED		PLB MPQ 1:5
DATE			CHECKED		
ALL ALTERATIONS TO BE VIA CAD			SCALE		1:5
WEIGHT ESTIMATED ACTUAL			SUPERSEDES		

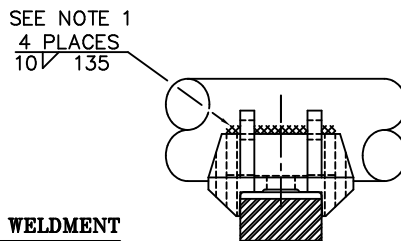
DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE	
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION	UNSPECIFIED TOLERANCES	
	BATCH DATE	NO DECIMALS	± 1mm
	SUPPLIER CODE	ONE	± 0.5mm
ORIGINAL FRAME SIZE 809mm x 562mm	BURRS AND SHARP EDGES TO BE REMOVED	TWO	± 0.2mm
		ANGULAR	± 0°



SECTION THROUGH PIVOT EYE BUSH



SADDLE WELDMENT
GENERAL ARRANGEMENT
(NOT TO SCALE)



DO NOT SCALE
IF IN DOUBT ASK

DESIGNED FOR
CUSTOMER USE

ALL DIMENSIONS ARE IN
MILLIMETRES
ORIGINAL FRAME SIZE
809mm x 562mm

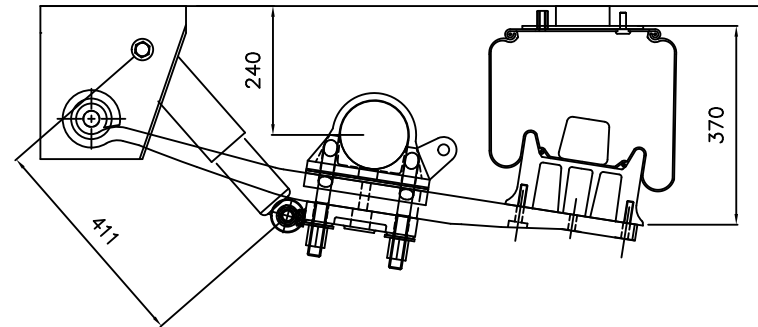
COMPONENTS TO CARRY
PART NO. AT LOCATION
BATCH DATE
SUPPLIER CODE
BURRS AND SHARP EDGES
TO BE REMOVED

UNSPECIFIED TOLERANCES
NO DECIMALS ± 1mm
ONE ± 0.5mm
TWO ± 0.2mm
ANGULAR ± 0° - 3°

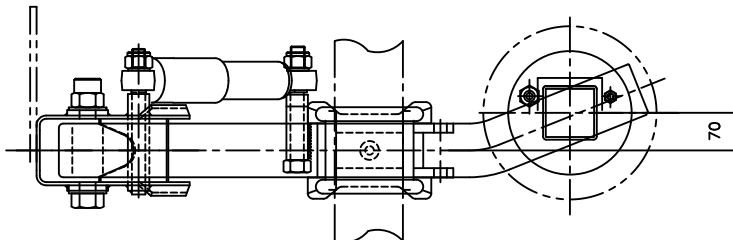
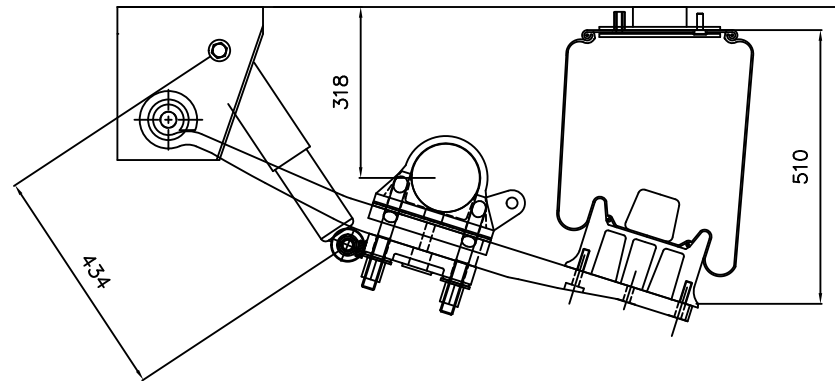
ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY P.SLATOR				
DATE 22 NOV 11				
ALL ALTERATIONS TO BE VIA CAD				
ESTIMATED ACTUAL				
SCALE				
SUPERSEDES				

B 100000000 - ENGINE	
A 1ST ISSUE - 10/11/11	
DISPOSITION	
MODIFICATIONS	
GRANNING LYNX	
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MATERIAL	
SEE BILL OF MATERIALS	
FINISH	
TITLE	
INSTALLATION	
PTL26-105A	
DRAWING NO. 18313	
SHEET 1 OF 2	

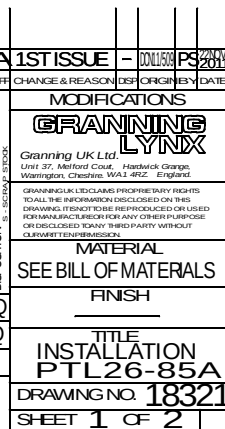
RIDE HEIGHT



MAXIMUM



DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR GRANNING SUSPENSIONS		DRAWN BY P. SLATOR DATE 22/11/11		AUTHORISED CHECKED MPQ MPQ		FINISH TITLE POSITIONS PTL26-105A	
ALL DIMENSIONS ARE IN MILLIMETRES		COMPONENTS TO CARRY PART NO. AT LOCATION BATCH DATE		UNSPECIFIED TOLERANCES DIMENSIONAL ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0° - 3°		SCALE ALL ALTERATIONS TO BE VIA CAD WEIGHT ESTIMATED ACTUAL		SUPERSEDES DRAWING NO. 18313 SHEET 2 OF 2	
ORIGINAL FRAME SIZE 809mm x 562mm		SUPPLIER CODE SURFS AND SHARP EDGES TO BE REMOVED						A	



PT(D) SUSPENSION GEOMETRY

NOTE: All dimensions are in millimetres (mm)

MODEL	RIDE HEIGHT			JOUNCE ▲	REBOUND ▼	AXLE LOAD (KG)	AIR BAG OFFSET & DIAMETER	HANGER PART No. DIM 'H'	PEDESTAL PART No. DIM'A'		AIR SPRING TYPE SADDLE SHOCK BOLT
	STD	MAX	MIN						AIRSPRING	SIDE LIFT	
PTL16	160	—	—	65	105	9000	0 300	13133/4 235	NONE	NOT APPLICABLE USE CENTRE LIFT.	1T15MP-7 C/PLATE
	—	200	—	105	65						
	—	—	160	65	105						
PTL19	190	—	—	85	70	10500	0/70 360	12457/8 160	11914 PLATE ONLY		1T19F-7 C/PLATE
	—	200	—	95	60						
	—	—	170	65	90						
PTL21	210	—	—	100	86	10500	0/70 360	13040/1 180	11914 PLATE ONLY		1T19F-7 C/PLATE
	—	230	—	120	66						
	—	—	190	80	106						
PTL23	230	—	—	85	70	10500	0/70 360	12455/6 210	13113 60		1T19F-7 C/PLATE
	—	240	—	95	60						
	—	—	215	65	85						
PTL27	280	—	—	85	70	10500	0/70 360	12453/4 250	13114 100		1T19F-7 C/PLATE
	—	290	—	95	60						
	—	—	265	65	90						
PT 38 - 80 L	380	—	—	103	111	9000	0 300	13040/1 180	NONE	DUAL SIDE LIFT	IT15MP-7 HOLE Ø25
	—	400	—	123	91						
	—	—	360	83	123						
PT 38 - 80 LX STEER	380	—	—	103	111	9000	0 300	13040/1 180	NONE	NONE	IT15MP-7 HOLE Ø25
	—	400	—	123	91						
	—	—	360	83	123						
PTS34	340	—	—	95	85	10500	0/70 360	12217 305	13113 60	USE CANTILEVER SIDE LIFT OR CENTRE LIFT	1T19F-11 HOLE Ø20
	—	365	—	120	60						
	—	—	335	90	90						
PTS38	380	—	—	95	85	10500	0/70 360	12218 345	13114 100		1T19F-11 HOLE Ø20
	—	405	—	120	60						
	—	—	350	90	90						
PTS43	430	—	—	95	85	10500	0/70 360	12219 395	13115 150		1T19F-11 HOLE Ø20
	—	455	—	120	60						
	—	—	400	90	90						
PTS34X DISCS	340	—	—	100	100	10500	0/70 360	13175/6 305	13114 100		1T19F-11 HOLE Ø20
	—	365	—	120	60						
	—	—	335	90	90						
PTS38X DISCS	380	—	—	105	88	10500	0/70 360	12218 345	13179 130		1T19F-11 HOLE Ø20
	—	400	—	125	68						
	—	—	360	85	108						

Level Trailers- Fit same suspension on all Axles.

Note: Sloping Tipper has level bottom flange over suspension.

SLOPING TRAILERS with up to 2 degree slope, drop one suspension size on rear axle. For greater slopes consult Granning engineering dept.

TIPPERS, TANKERS, & ALL SPECIALS. ALWAYS FIT WRAPPERS WHERE POSSIBLE.

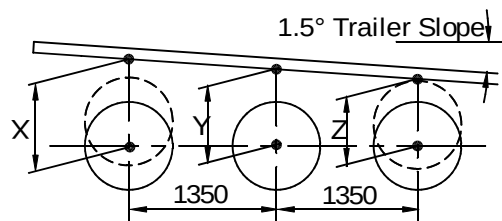
X = 455 - Use PTS43 suspension

Y = 430 - Use PTS43 suspension

Z = 405 - Use PTS38 suspension

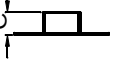
Front axle lift available 120mm

Rear axle lift available 95mm



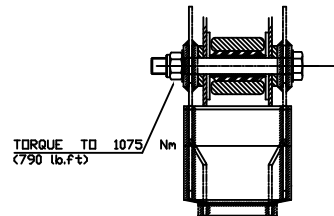
SUSPENSION GEOMETRY

NOTE: All dimensions are in millimetres (mm)

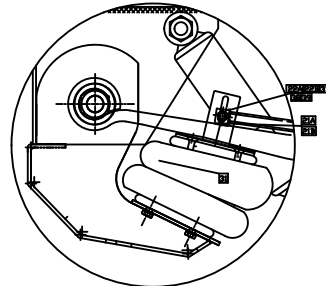
MODEL	RIDE HEIGHT			JOUNCE ▲	REBOUND ▼	STANDARD RIDE HEIGHTS AVAILABLE	HANGER DIM "A" 	HANGER PART NUMBER	PEDESTAL DIM "C" 	PEDESTAL PART NUMBER	LIFT KIT TYPE	AIR SPRING TYPE	AXLE LOAD (KG)	AIR BAG OFFSET & DIAMETER	APPLICATION	DRAWING REFERENCE
	STD	MAX	MIN													
U.A.HE. .5.30. 180.20	180	—	—	?	?	180mm 205mm 230mm 255mm	285mm 310mm 335mm 360mm	? ? ? ?	50mm 75mm 100mm ?	? ? ? ?	CENTRE LIFT ARM OR CENTRE PISTON LIFT	1T15MP-7	9000	20 300	8T / AXLE LOWLOADER	?
U.A.HD .5.30. 375.20	375	—	—	?	?	375mm 400mm 425mm 450mm	285mm 310mm 335mm 360mm	? ? ? ?	----- 30mm 50mm 75mm	? ? ? ?	CENTRE LIFT ARM OR PART NO ?????	IT15MP-7	9000	20 300	8T / AXLE STD TRAILER	?
L.A.EB.5 .36.185. 50/90	185	—	—	?	?	185mm 215mm 240mm 265mm 290mm	310mm 335mm 360mm 390mm 410mm	? ? ? ? ?	----- 30mm 50mm 75mm 100mm	? ? ? ? ?	CENTRE LIFT ARM OR CENTRE PISTON LIFT	?	10500	50/90 360	10.5T / AXLE STEPFRAME LOWLOADER	?
L.A.EB.5 .36.400. 50/90	400	—	—	?	?	400mm 425mm 450mm 475mm	285mm 310mm 335mm 360mm	? ? ? ?	----- 30mm 50mm 75mm	? ? ? ?	CENTRE LIFT ARM OR PART NO ?????	?	10500	50/90 360	10.5T / AXLE STD TRAILER NOT TIPPER	?
K.A.EP. 5.36.475 .50/90	475	—	—	?	?	425mm 450mm 475mm 500mm	310mm 335mm 360mm 390mm	? ? ? ?	----- 30mm 50mm 75mm	? ? ? ?	CENTRE LIFT ARM OR PART NO ?????	?	10500	50/90 360	10.5T / AXLE TIPPER	?

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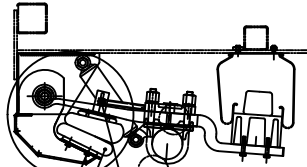
OPTIONAL L702PTSL BOLT ON TWIN LIFT ASSEMBLY



SECTION THROUGH PIVOT EYE BUSH
NOT TO SCALE



LIFT SPRING DETAIL
NOT TO SCALE



TORQUE TO 25 Nm (20 lb.ft)

TORQUE TO 40 Nm (30 lb.ft)

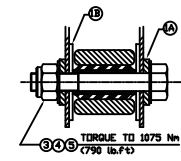
NOTE 1: PART NUMBER REFER TO L702PTSL BOLT ON LIFT ASSEMBLY
NOTE 2: FIT ONE ASSEMBLY AS SHOWN TO EACH HANGER OF LIFTING AXLE

DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY WEIGHT AT LOCATION
ORIGINAL FRAME SIZE 809mm x 562mm	UNSPECIFIED TOLERANCES: NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0°-3'

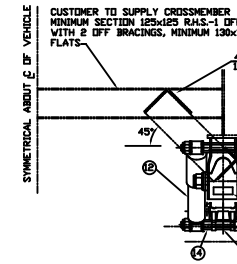
ITEM	PART NO	DESCRIPTION	NOTES
1	CALLAN	BILL OF MATERIALS	
2	10APR2008	DRAWN BY	
3	1:4	CHECKED	
4	SCALE	TO BE VIA CAD	
5	VELOCITY	SUPERSEDES	
6	ESTIMATED ACTUAL		
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ITEM	PART NO	DESCRIPTION	NOTES
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4	SCALE	TO BE VIA CAD	
5	VELOCITY	SUPERSEDES	
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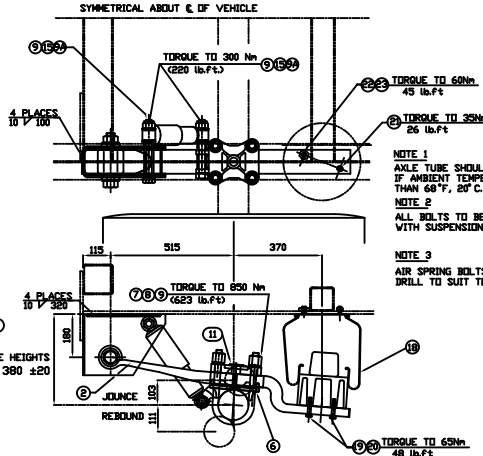
SECTION THROUGH PIVOT EYE BUSH
NOT TO SCALE



SYMMETRICAL ABOUT C OF VEHICLE

4 PLACES 10/100

MIN 20



SYMMETRICAL ABOUT C OF VEHICLE

TORQUE TO 300 Nm (223 lb.ft)

TORQUE TO 60Nm (45 lb.ft)

TORQUE TO 35Nm (26 lb.ft)

NOTE 1: AXLE TUBE SHOULD BE PRE-HEATED IF AMBIENT TEMPERATURE IS LESS THAN 68°F, 20°C
NOTE 2: ALL BOLTS TO BE TORQUED WITH SUSPENSION IN THE RIDE HEIGHT POSITION
NOTE 3: AIR SPRING BOLTS DIRECT TO FLANGE. DRILL TO SUIT TOP PLATE

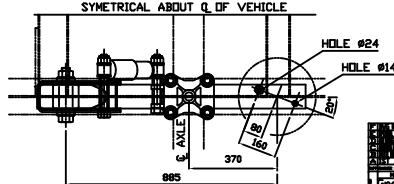
ITEM	PART NO	DESCRIPTION	NOTES
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4	SCALE	TO BE VIA CAD	
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DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY WEIGHT AT LOCATION
ORIGINAL FRAME SIZE 809mm x 562mm	UNSPECIFIED TOLERANCES: NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0°-3'

ITEM	PART NO	DESCRIPTION	NOTES
1	CALLAN	BILL OF MATERIALS	
2	10APR2008	DRAWN BY	
3	1:4	CHECKED	
4	SCALE	TO BE VIA CAD	
5	VELOCITY	SUPERSEDES	
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FORWARD SYMMETRICAL ABOUT Q OF VEHICLE



HOLE #24

HOLE #14

80

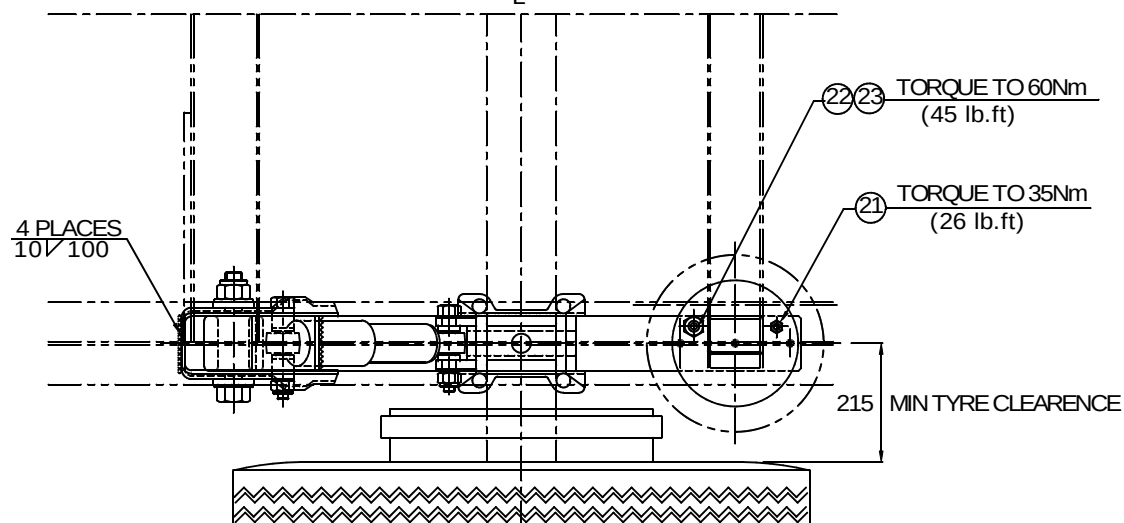
160

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885</

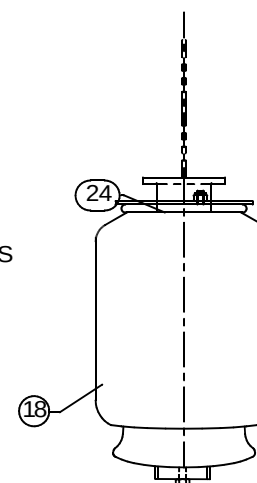
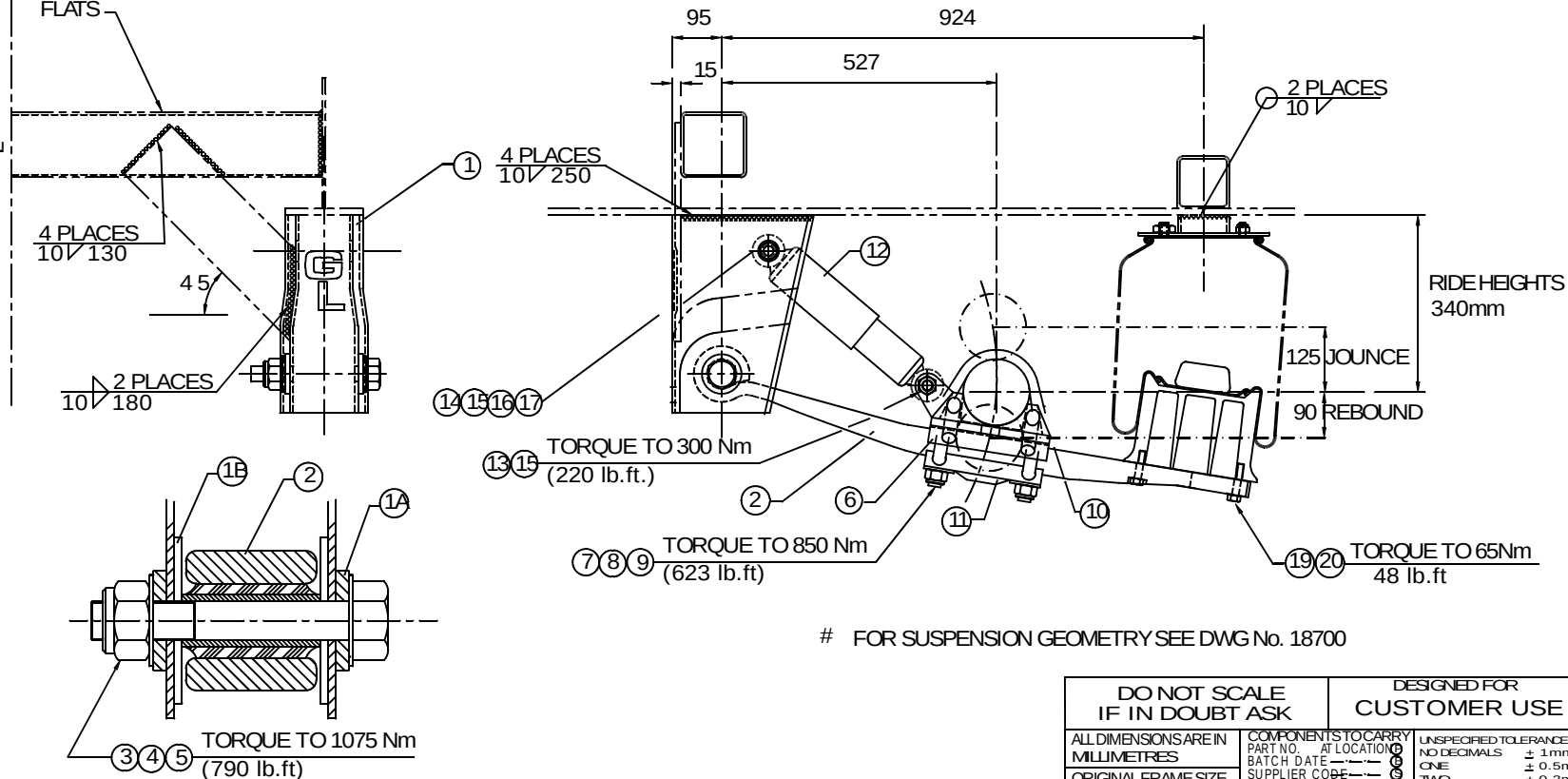
CUSTOMER TO SUPPLY CROSSMEMBER
MINIMUM SECTION 125x125 R.H.S.-1 OFF
WITH 2 OFF BRACINGS, MINIMUM 130x12
FLATS -

SYMMETRICAL ABOUT C OF VEHICLE



RIDE HEIGHT RANGE: 280-365MM

SYMMETRICAL ABOUT ρ OF VEHICLE



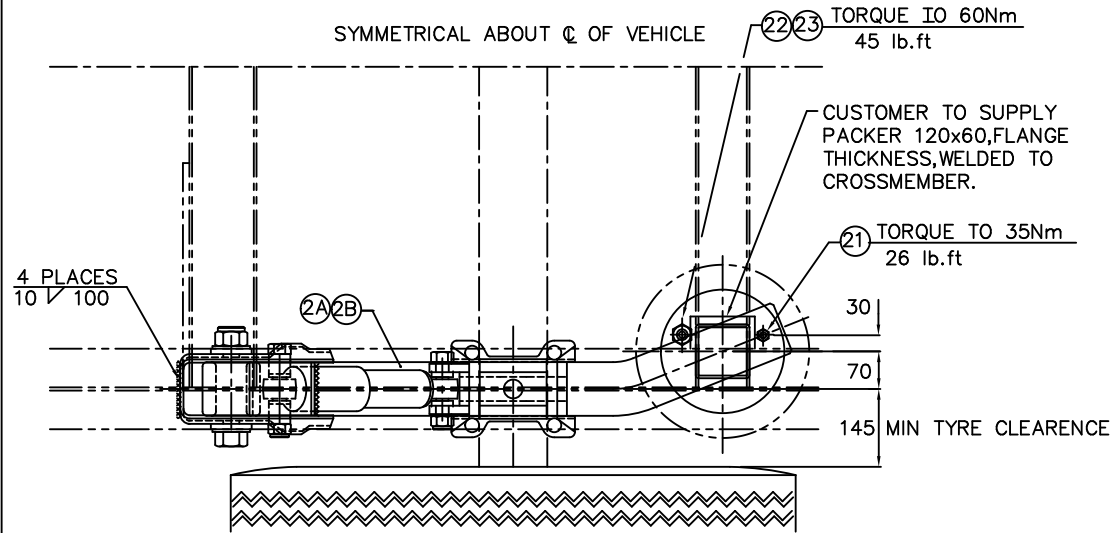
FOR SUSPENSION GEOMETRY SEE DWG No. 18700

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY RCONDON			AUTHORISED F	
DATE 22 APR 94			CHECKED M	
ALL ALTERATIONS TO BE VIA CAD			SCALE 1	
WEIGHT ESTIMATED ACTUAL			SUPERSEDES	

[illegible]

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THIRD ANGLE PROJECTION



NOTE 1

AXLE TUBE SHOULD BE PRE-HEATED IF AMBIENT TEMPERATURE IS LESS THAN 68°F, 20°C.

NOTE 2

WELD AFTER TRACKING AXLE. PROTECT SPRING BEAM FROM ARCING AND SPLATTER.

NOTE 3

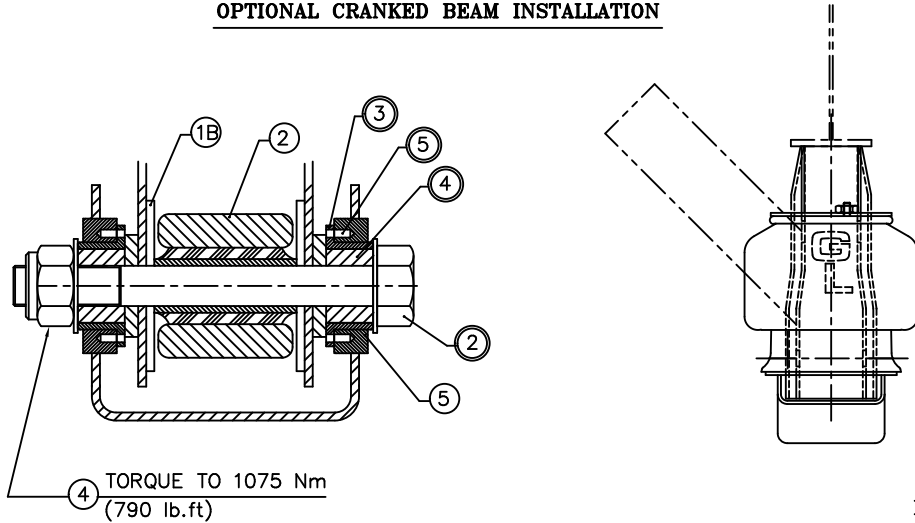
FOR ITEMS MARKED SEE B.O.M. L602PTS*

FOR ITEMS MARKED SEE B.O.M. PTS*

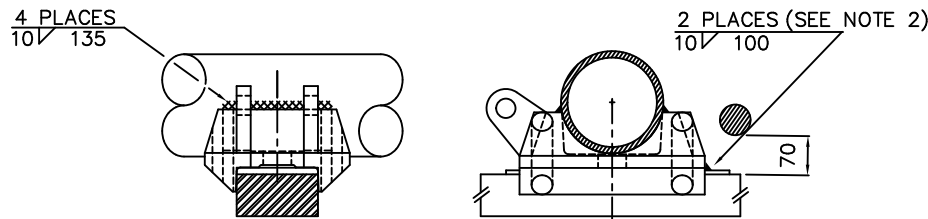
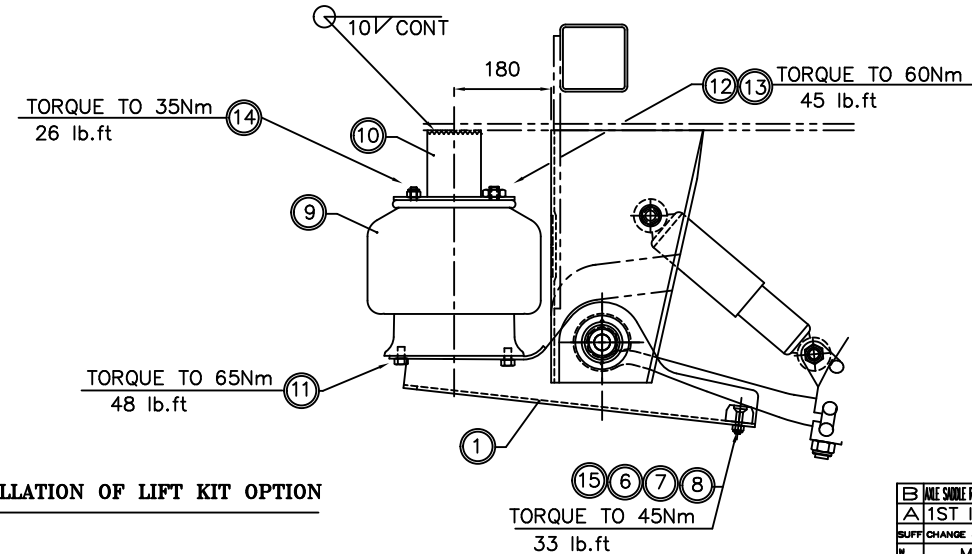
NOTE 4

ALL BOLTS TO BE TORQUED WITH SUSPENSION IN THE RIDE HEIGHT POSITION

OPTIONAL CRANKED BEAM INSTALLATION



INSTALLATION OF LIFT KIT OPTION



SADDLE WELDMENT

DO NOT SCALE
IF IN DOUBT ASK

DESIGNED FOR
CUSTOMER USE

ALL DIMENSIONS ARE IN
MILLIMETRES
ORIGINAL FRAME SIZE
809mm x 562mm

COMPONENTS TO CARRY
PART NO. AT LOCATION
BATCH DATE
SUPPLIER CODE
BURRS AND SHARP EDGES
TO BE REMOVED

UNSPECIFIED TOLERANCES
NO DECIMALS ± 1mm
ONE ± 0.5mm
TWO ± 0.2mm
ANGULAR ± 0° - 3°

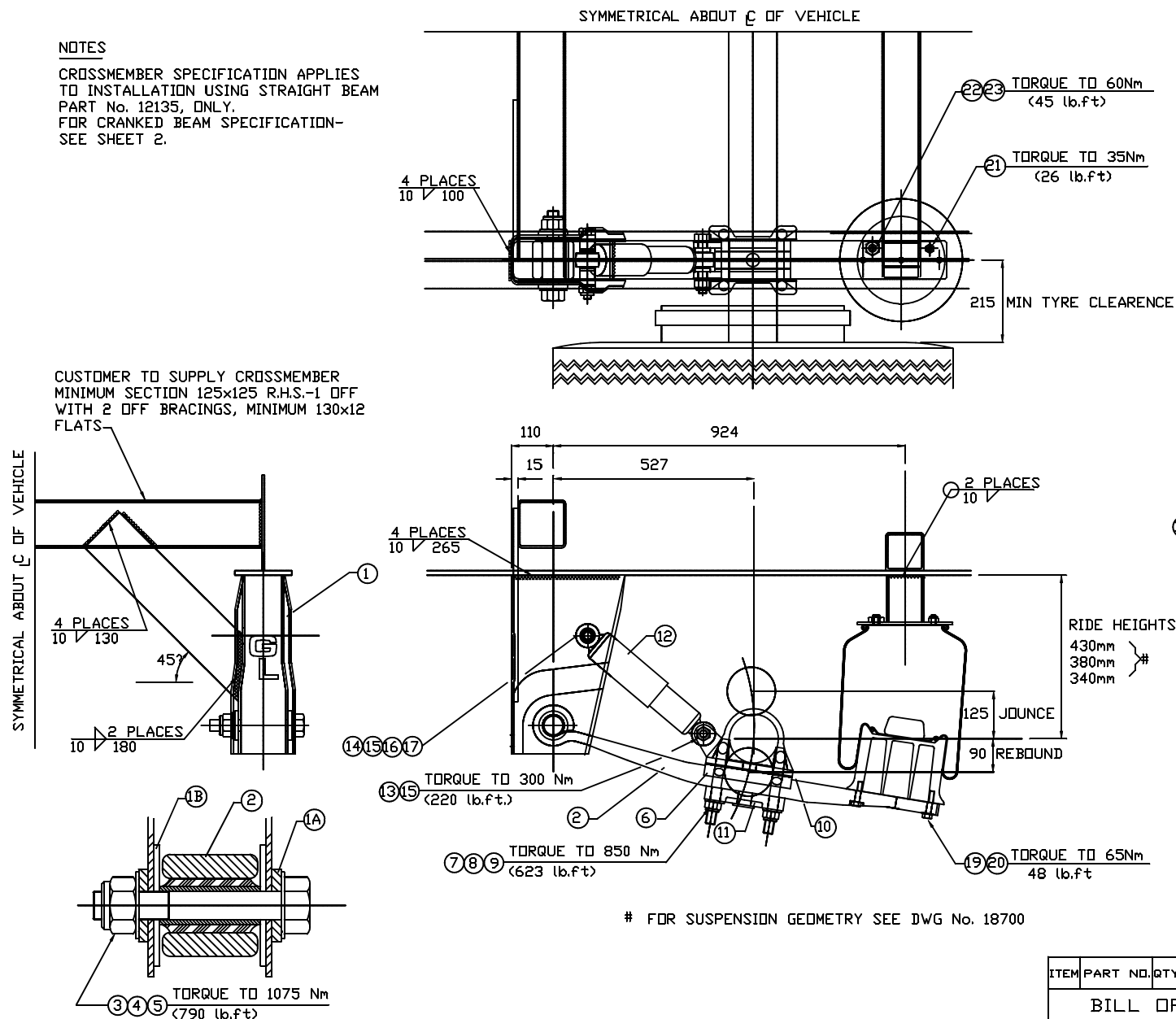
ALL ALTERATIONS
TO BE VIA CAD
WEIGHT
ESTIMATED ACTUAL

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY		R.CONDON		AUTHORISED
DATE		22 APR 94		CHECKED
				PLB
				MPQ
				SCALE
				1:5
				SUPERSEDES

B	DATE SHOWN TO TOWS - 10/02/94		DATE SHOWN TO TOWS - 10/02/94		
	A 1ST ISSUE - ENGR		A 1ST ISSUE - ENGR		
MODIFICATIONS					
GRANNING LYNX					
Granning UK Ltd. Unit 27, Millers Court, Huddersfield, West Yorkshire, HD1 4RZ, England.					
GRANNING UK LTD. CLAIMS PROPRIETARY RIGHTS TO ALL THE INFORMATION CONTAINED ON THIS DRAWING. IT IS NOT TO BE REPRODUCED OR USED FOR MANUFACTURE OR FOR ANY OTHER PURPOSE OR DISCLOSED TO ANY THIRD PARTY WITHOUT OUR WRITTEN PERMISSION.					
MATERIAL					
SEE BILL OF MATERIALS					
FINISH					
TITLE					
PTS SUSPENSION RANGE					
DRAWING NO. 18118					
SHEET 2 OF 2					

NOTES

CROSSMEMBER SPECIFICATION APPLIES TO INSTALLATION USING STRAIGHT BEAM PART No. 12135, ONLY. FOR CRANKED BEAM SPECIFICATION-SEE SHEET 2.



FOR SUSPENSION GEOMETRY SEE DWG No. 18700

C	U BOLTS AND SADDLE REVISED	-	ENGJF	NOTEC
B	DWG REVISED	-	ENGJF	2013
A	1ST ISSUE	-	ENGJF	2012
SUFF	CHANGE & REASON	DISP	ORIGIN	BY DATE

MODIFICATIONS

Granning axles

Engineered Transport Solutions
Toughline Manufacturing Ltd.
Naas Ind. Est., Naas, Co. Kildare, Ireland.
Tel: 00 353 45 897 553
www.granningaxles.ie

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MATERIAL

SEE BILL OF MATERIALS

FINISH

GREY PRIMER

TITLE

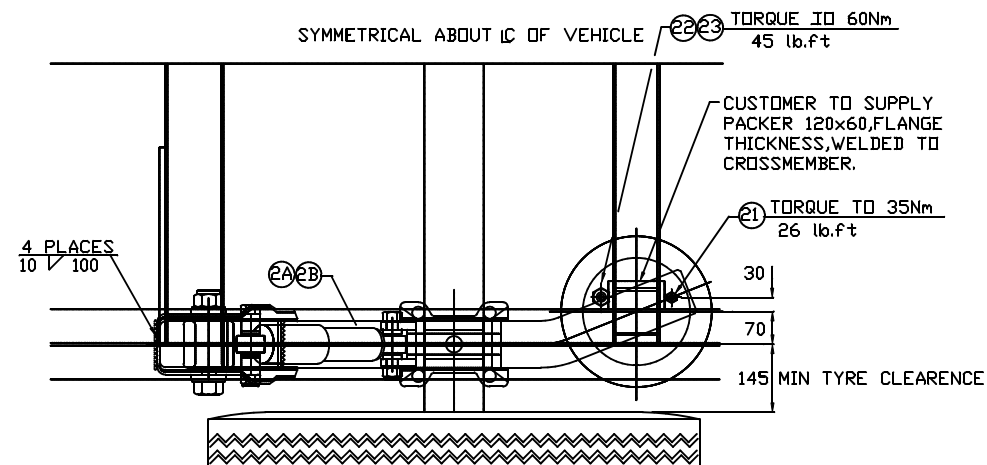
INSTALLATION
PTS (C) SUSPENSION RANGE

DRAWING NO.18131

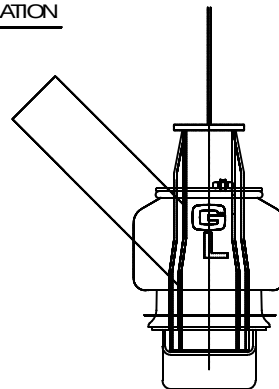
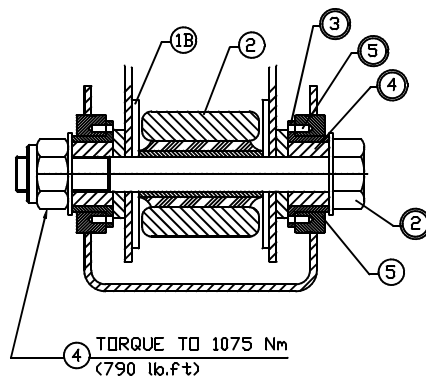
SHEET 1 OF 2

DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE	
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION	UNSPECIFIED TOLERANCES NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0° - 3'	ALL ALTERATIONS TO BE VIA CAD WEIGHT ESTIMATED ACTUAL
ORIGINAL FRAME SIZE 809mm x 562mm	BATCH DATE SUPPLIER CODE BURRS AND SHARP EDGES TO BE REMOVED		

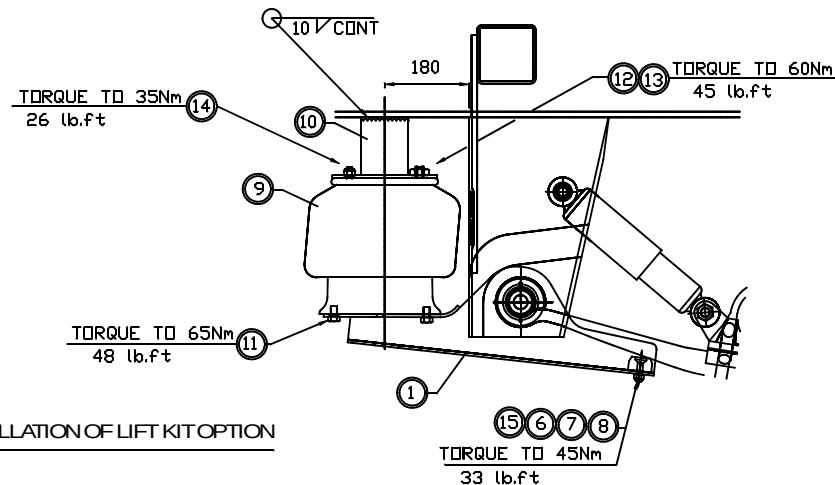
ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY		F G REID		
DATE		21FEB1995		
AUTHORISED		CHECKED		
SCALE		1:5		
SUPERSEDES				



OPTIONAL CRANKED BEAM INSTALLATION



INSTALLATION OF LIFT KIT OPTION



NOTE 1

AXLE TUBE SHOULD BE PRE-HEATED
IF AMBIENT TEMPERATURE IS LESS
THAN 68°F, 20°C.

NOTE 2

WELD AFTER TRACKING AXLE.
PROTECT SPRING BEAM FROM
ARCING AND SPLATTER.

NOTE 3

FOR ITEMS MARKED SEE B.O.M. L602PTS*

FOR ITEMS MARKED SEE B.O.M. PTS*

NOTE 4

ALL BOLTS TO BE TORQUED
WITH SUSPENSION IN THE RIDE HEIGHT POSITION

C	U BOLTS AND SADDLE REVISED	-	ENGJF	2013
B	DWG REVISED	-	ENGJF	2012
A	1ST ISSUE	-	ENGJF	1995
SUFF	CHANGE & REASON	DISP	ORIGIN	BY DATE

MODIFICATIONS

Granning axles

Engineered Transport Solutions
Toughline Manufacturing Ltd.
Naas Ind. Est., Naas, Co. Kildare, Ireland.
Tel: 00 353 45 897 553
www.granningaxles.ie

Granning axles. CLAIMS PROPRIETARY RIGHTS
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FOR MANUFACTURE OR FOR ANY OTHER PURPOSE
OR DISCLOSED TO ANY THIRD PARTY WITHOUT
OUR WRITTEN PERMISSION.

MATERIAL

SEE BILL OF MATERIALS

FINISH

GREY PRIMER

TITLE

INSTALLATION
PTS (C) SUSPENSION RANGE

DRAWING NO. 18131

SHEET 2 OF 2

DO NOT SCALE
IF IN DOUBT ASK

DESIGNED FOR
CUSTOMER USE

ALL DIMENSIONS ARE IN
MILLIMETRES

ORIGINAL FRAME SIZE
809mm x 562mm

COMPONENTS TO CARRY
PART NO. AT LOCATION
BATCH DATE
SUPPLIER CODE
BURRS AND SHARP EDGES
TO BE REMOVED

UNSPECIFIED TOLERANCES
NO DECIMALS ± 1mm
ONE ± 0.5mm
TWO ± 0.2mm
ANGULAR ± 0° - 3'

ITEM PART NO. QTY DESCRIPTION NOTES

BILL OF MATERIALS

DRAWN BY F G REID

DATE 21 FEB 1995

ALL ALTERATIONS
TO BE VIA CAD

WEIGHT
ESTIMATED ACTUAL

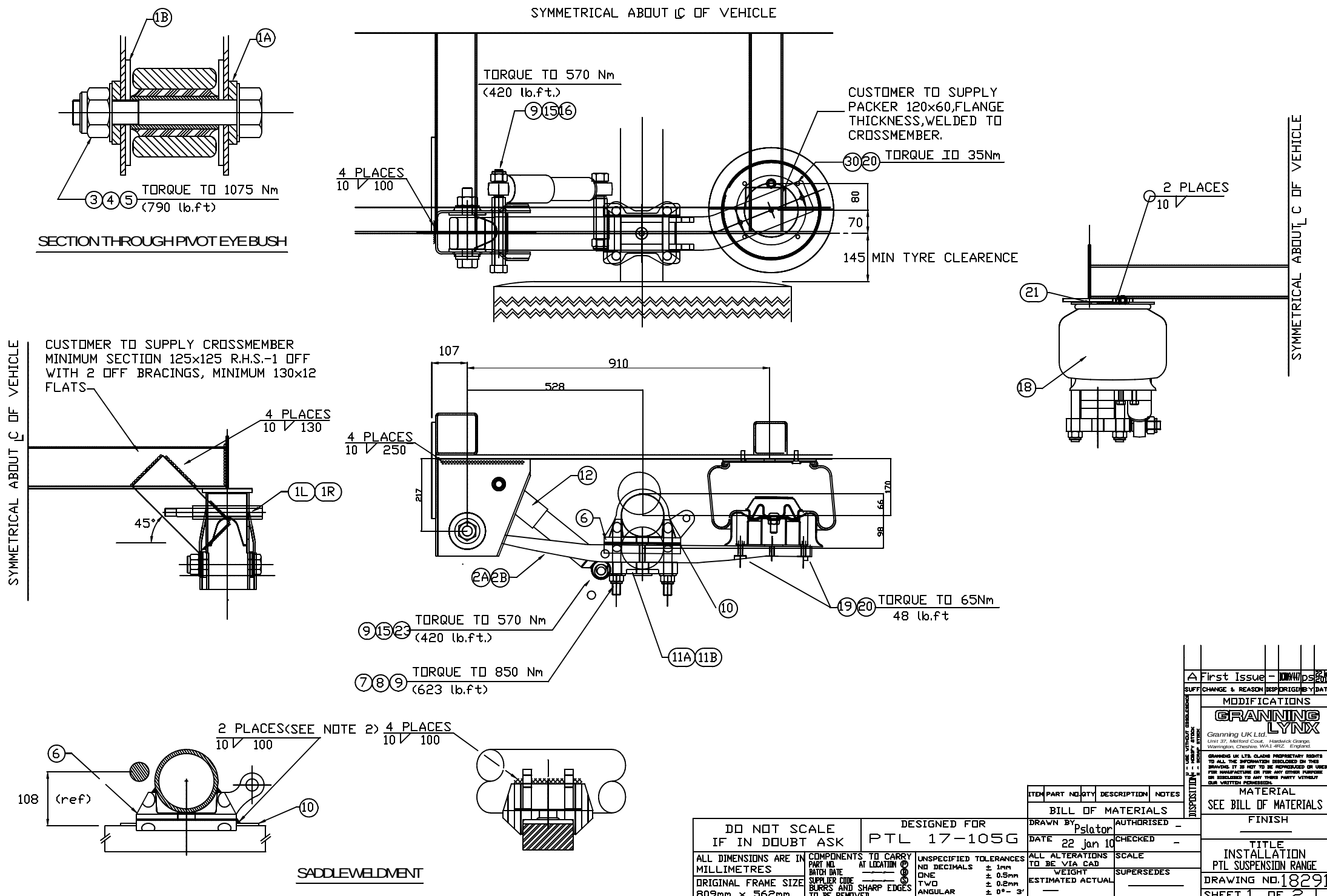
AUTHORISED

CHECKED

SCALE 1:5

SUPERSEDES

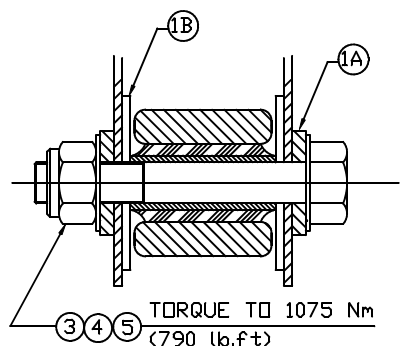
DISPOSITION



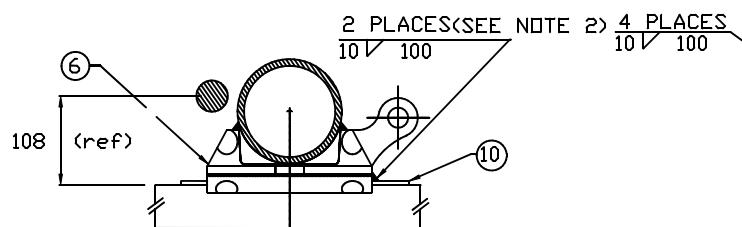
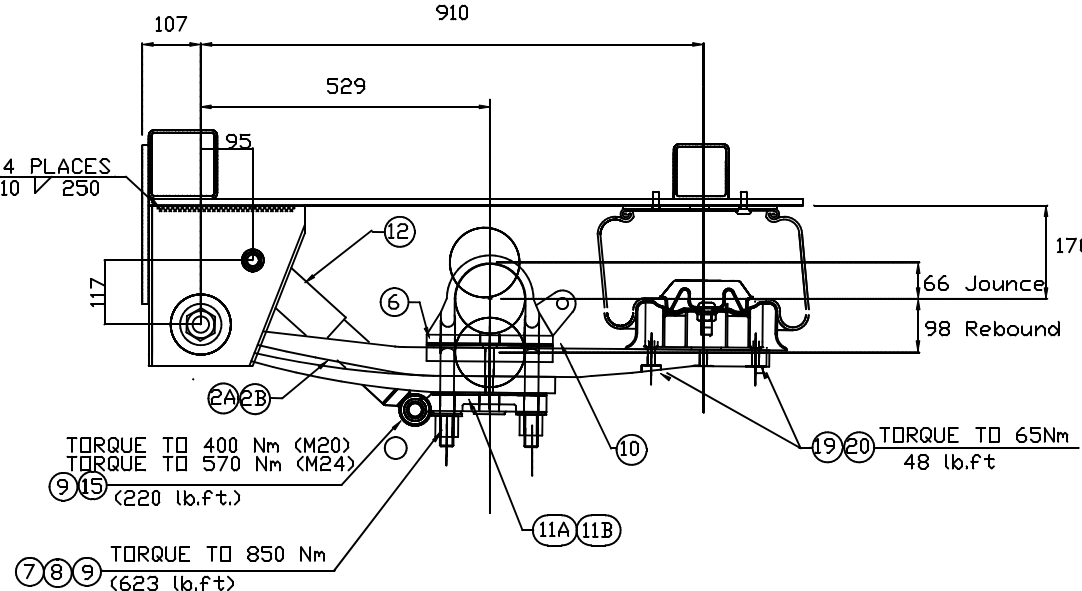
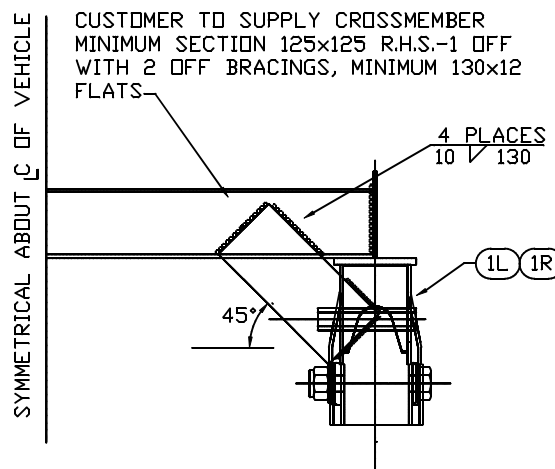
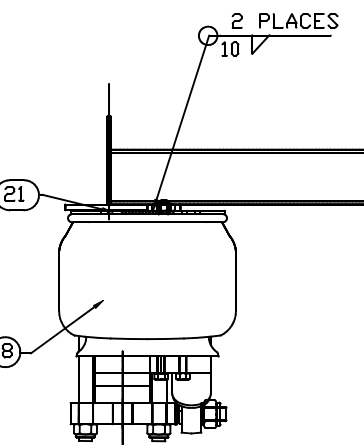
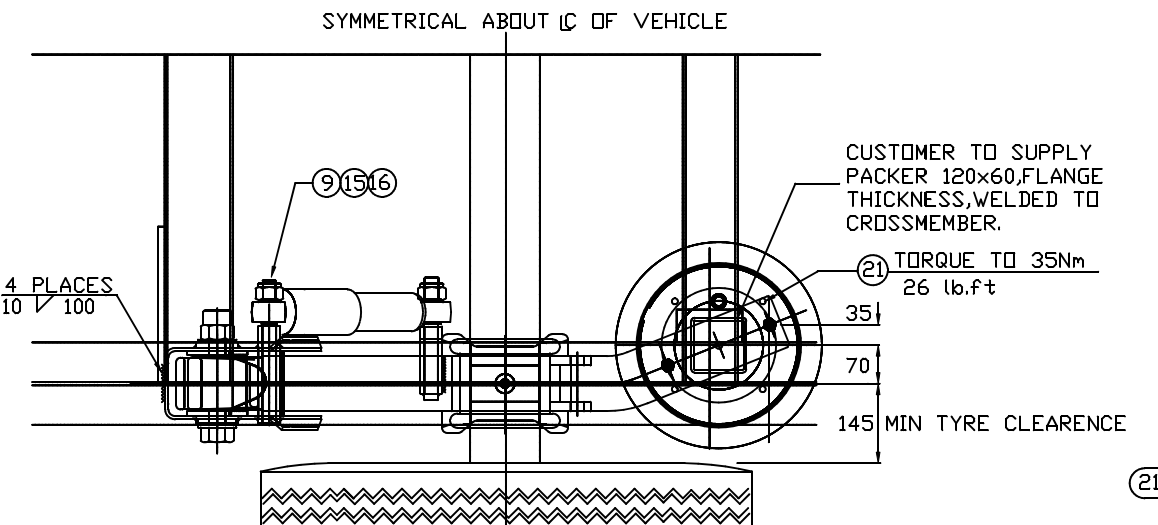
First Issue	10/10/2010	10/10/2010
SUFF CHANGE & REASON	DISPER	10/10/2010
MODIFICATIONS		
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MATERIAL SEE BILL OF MATERIALS		
FINISH		
TITLE INSTALLATION PTL SUSPENSION RANGE		
DRAWING NO. 18291		
SHEET 1 OF 2		

DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR PTL 17-105G	
ALL DIMENSIONS ARE IN MILLIMETRES		COMPONENTS TO CARRY PART NO. AT LOCATION	
ORIGINAL FRAME SIZE 809mm x 562mm		UNSPECIFIED TOLERANCES	
		NO DECIMALS ± 1mm	
		ONE ± 0.5mm	
		TWO ± 0.2mm	
		ANGULAR ± 0° - 3'	
		ALL ALTERATIONS TO BE VIA CAD	
		ESTIMATED ACTUAL	
		SCALE	
		SUPERSEDES	

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY		AUTHORISED -		
DATE		CHECKED -		



SECTION THROUGH PIVOT EYE BUSH



SADDLE WELDMENT

DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR PTL 17-125 G	
ALL DIMENSIONS ARE IN MILLIMETRES		COMPONENTS TO CARRY PART NO. AT LOCATION BATCH - 30-A-TUE SUPPLIER - 30-A-TUE BURRS AND SHARP EDGES TO BE REMOVED	
ORIGINAL FRAME SIZE 809mm x 562mm		UNSPECIFIED TOLERANCES NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0° - 3°	

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY		AUTHORISED -		
DATE		CHECKED -		
mar 11		SCALE		
ESTIMATED ACTUAL		SUPERSEDES		

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A FIRST ISS - ENG 2011	
SUFF CHANGE & REASON DISPRIGED BY DATE	
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MATERIAL SEE BILL OF MATERIALS	
FINISH	
TITLE INSTALLATION PTL SUSPENSION RANGE	
DRAWING NO. 18302	
SHEET 1 OF 1 A1	

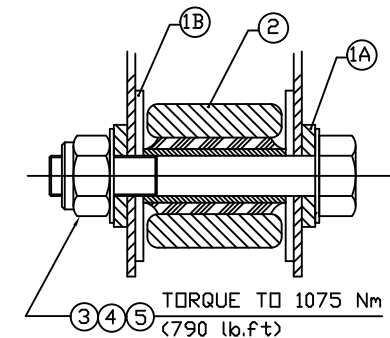
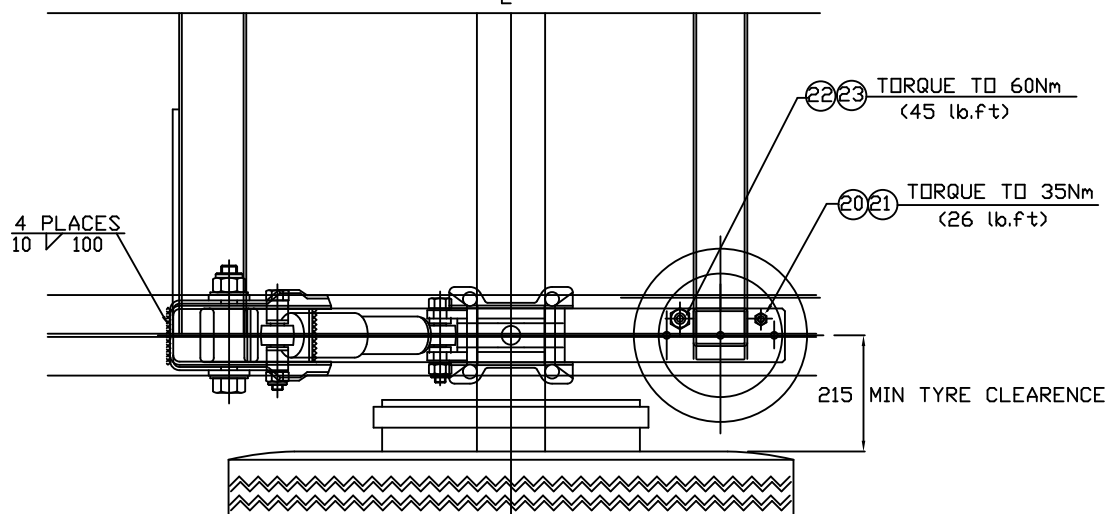
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THIRD ANGLE PROJECTION

NOTES

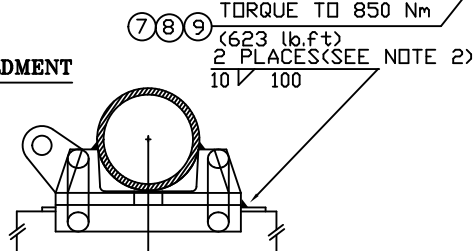
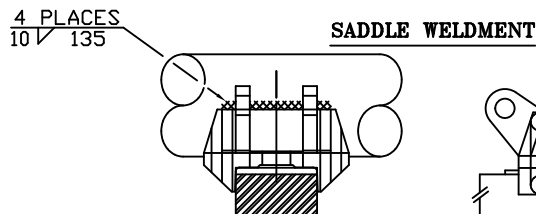
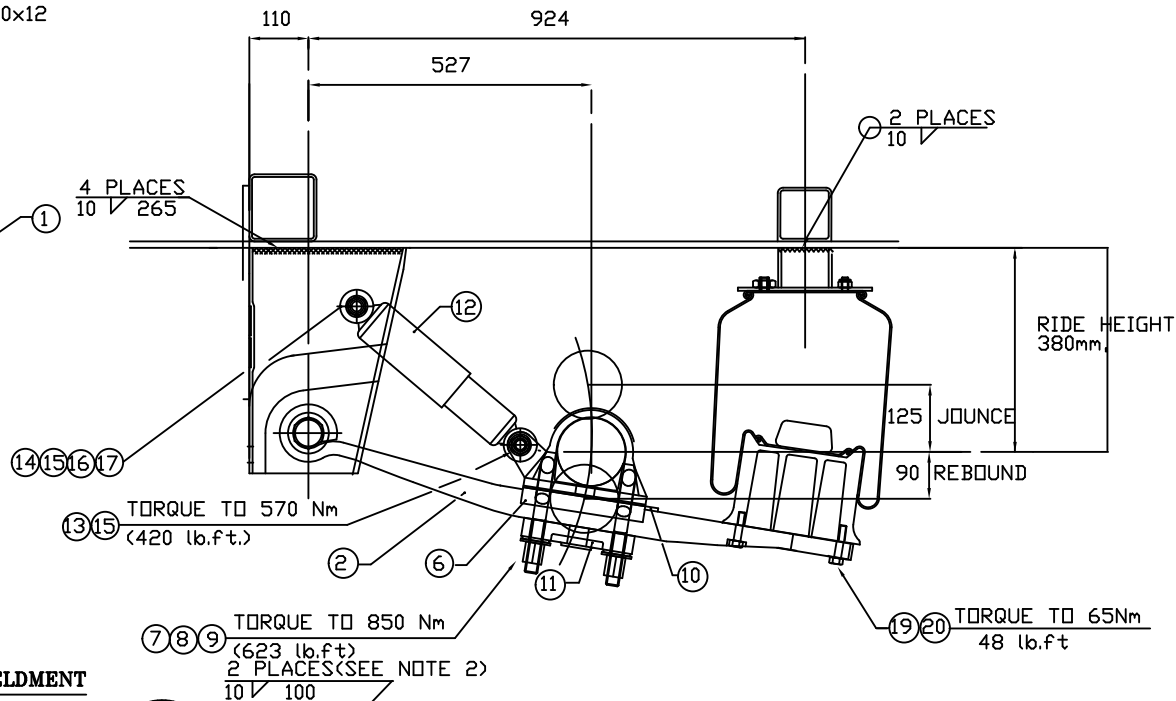
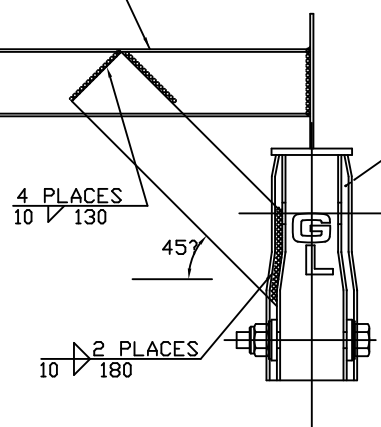
CROSSMEMBER SPECIFICATION APPLIES TO INSTALLATION USING STRAIGHT BEAM PART No. 12135, ONLY. FOR CRANKED BEAM SPECIFICATION-SEE SHEET 2.

SYMMETRICAL ABOUT C OF VEHICLE



CUSTOMER TO SUPPLY CROSSMEMBER MINIMUM SECTION 125x125 R.H.S.-1 OFF WITH 2 OFF BRACINGS, MINIMUM 130x12 FLATS

SYMMETRICAL ABOUT C OF VEHICLE



DO NOT SCALE
IF IN DOUBT ASK

DESIGNED FOR
CUSTOMER USE

ALL DIMENSIONS ARE IN
MILLIMETRES
ORIGINAL FRAME SIZE
809mm x 562mm

COMPONENTS TO CARRY
PART NO. AT LOCATION
BATCH DATE
SUPPLIER CODE
BURRS AND SHARP EDGES
TO BE REMOVED

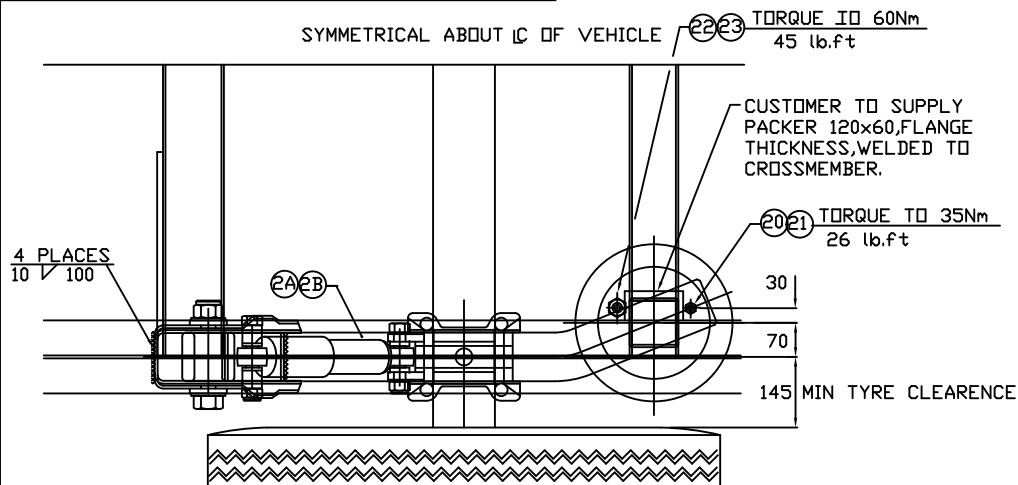
UNSPECIFIED TOLERANCES
NO DECIMALS ± 1mm
ONE ± 0.5mm
TWO ± 0.2mm
ANGULAR ± 0° - 3'

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY P.SLATOR			AUTHORISED	
DATE 8DEC 11			CHECKED	
ALL ALTERATIONS TO BE VIA CAD			SCALE	
ESTIMATED WEIGHT			SUPERSEDES	
ESTIMATED ACTUAL				

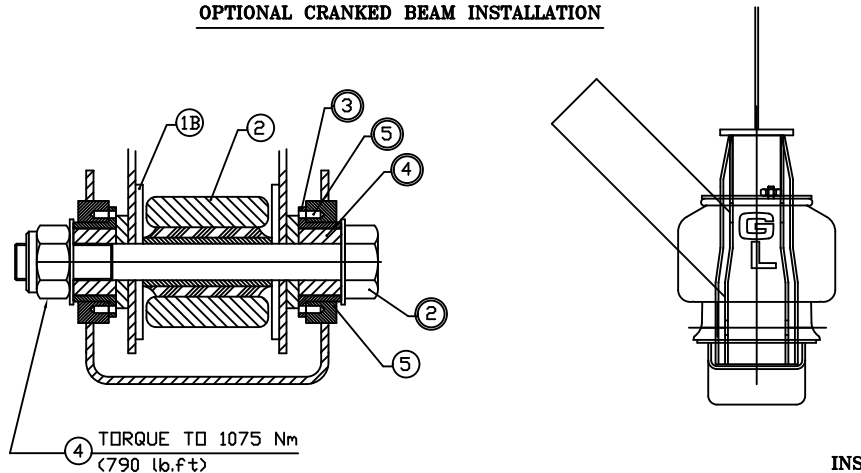
DATE SHOWN REVIEWED TO DATE	10/07/12	11/07/12
1ST ISSUE	10/07/12	11/07/12
SUFF. CHANGE & REASON	DISP. BY	DATE
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MATERIAL		
SEE BILL OF MATERIALS		
FINISH		
TITLE		
PTS 38-85A		
DRAWING NO. 18320		
SHEET 1 OF 3		

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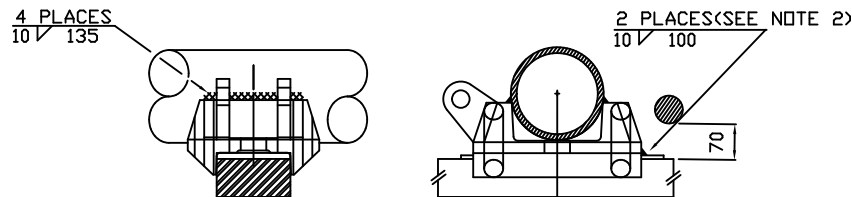
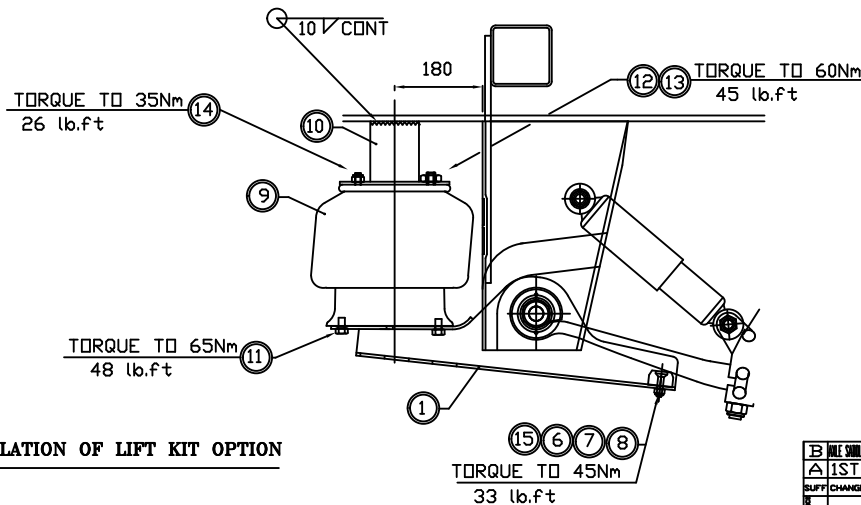
THIRD ANGLE PROJECTION



OPTIONAL CRANKED BEAM INSTALLATION



INSTALLATION OF LIFT KIT OPTION



SADDLE WELDMENT

NOTE 1

AXLE TUBE SHOULD BE PRE-HEATED
IF AMBIENT TEMPERATURE IS LESS
THAN 68°F, 20°C.

NOTE 2

WELD AFTER TRACKING AXLE.
PROTECT SPRING BEAM FROM
ARCING AND SPLATTER.

NOTE 3

FOR ITEMS MARKED SEE B.O.M. L602PTS*

FOR ITEMS MARKED SEE B.O.M. PTS*

NOTE 4

ALL BOLTS TO BE TORQUED
WITH SUSPENSION IN THE RIDE HEIGHT POSITION

DO NOT SCALE IF IN DOUBT ASK	
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION
BATCH DATE	ONE
SUPPLIER CODE	TWO
ORIGINAL FRAME SIZE 809mm x 562mm	BURRS AND SHARP EDGES TO BE REMOVED

DESIGNED FOR CUSTOMER USE	
UNSPECIFIED TOLERANCES	ALL ALTERATIONS TO BE VIA CAD
NO DECIMALS ± 1mm	WEIGHT
ONE ± 0.5mm	ESTIMATED ACTUAL
TWO ± 0.2mm	
ANGULAR ± 0° - 3'	

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY P. SLATOR			AUTHORISED	
DATE 8 DEC 11			CHECKED	
			SCALE	
			SUPERSEDES	

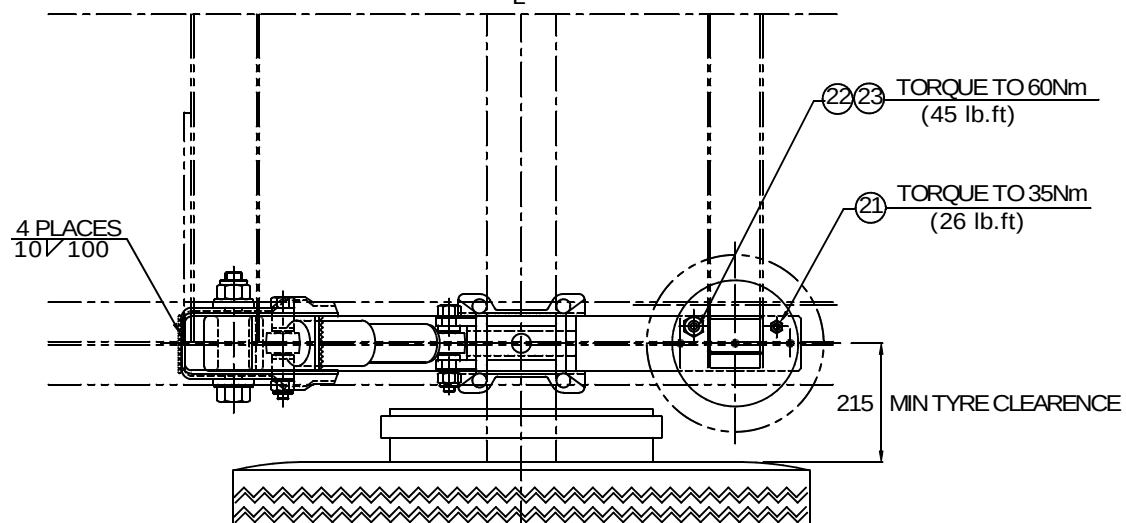
B	FILE SHABLE REVISED TO 2005	1	10/01/02	10/01/02
A	1ST ISSUE	1	10/01/02	10/01/02
SUFF CHANGE & REASON DISC				
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MATERIAL				
SEE BILL OF MATERIALS				
FINISH				
TITLE				
PTS 38-85A and 105A				
DRAWING NO. 18320				
SHEET 2 OF 2 A1				

NOTES

CROSSMEMBER SPECIFICATION APPLIES
TO INSTALLATION USING STRAIGHT BEAM
PART No. 12135, ONLY.
FOR CRANKED BEAM SPECIFICATION-
SEE SHEET 2.

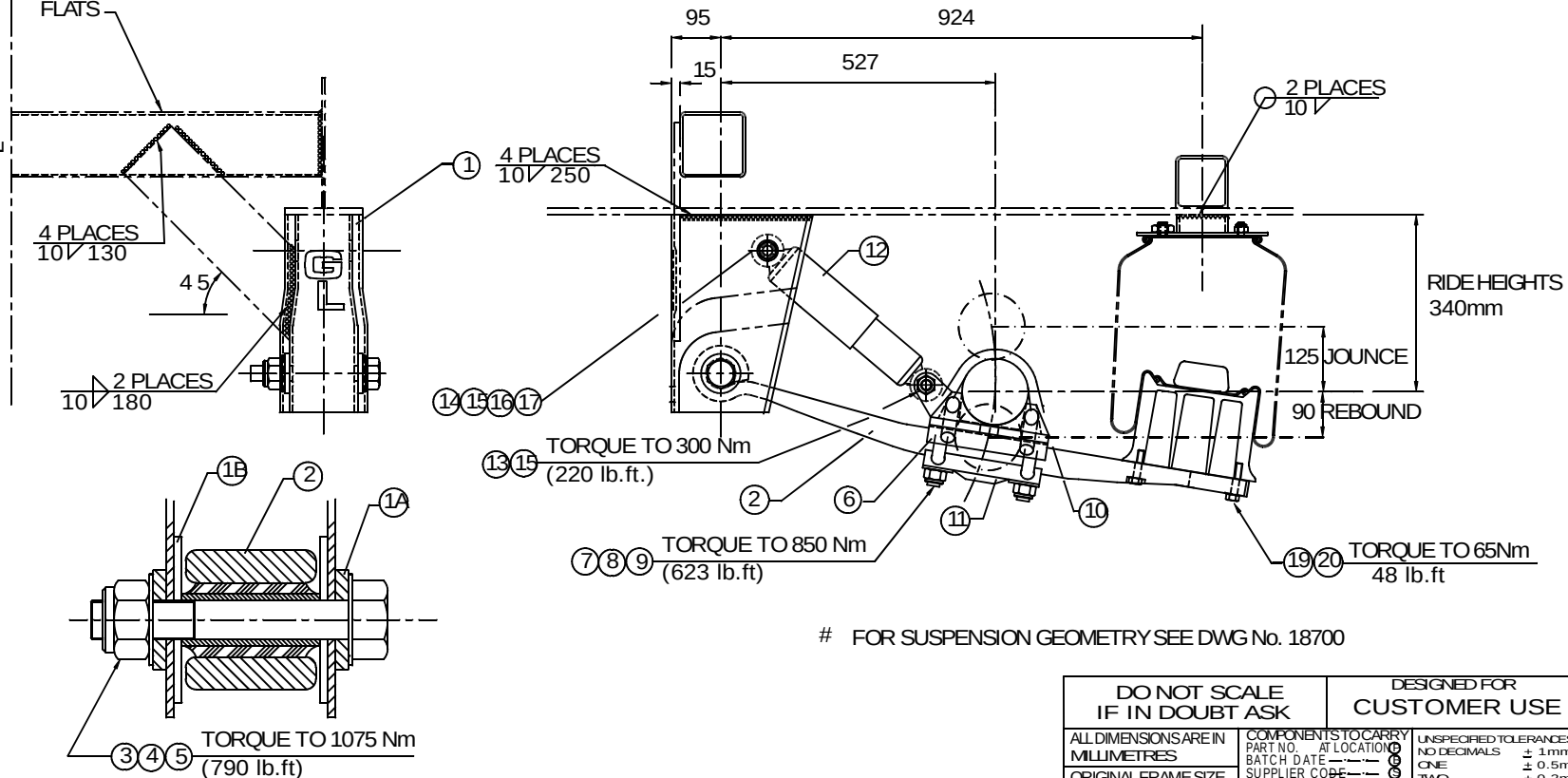
CUSTOMER TO SUPPLY CROSSMEMBER
MINIMUM SECTION 125x125 R.H.S.-1 OFF
WITH 2 OFF BRACINGS, MINIMUM 130x12
FLATS -

SYMMETRICAL ABOUT C OF VEHICLE

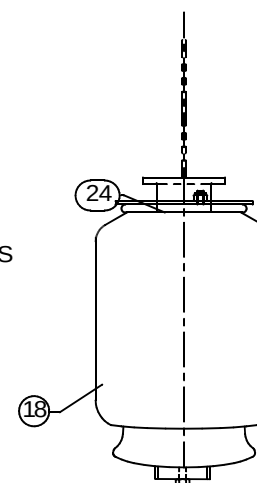


RIDE HEIGHT RANGE: 280-365MM

SYMMETRICAL ABOUT ρ OF VEHICLE



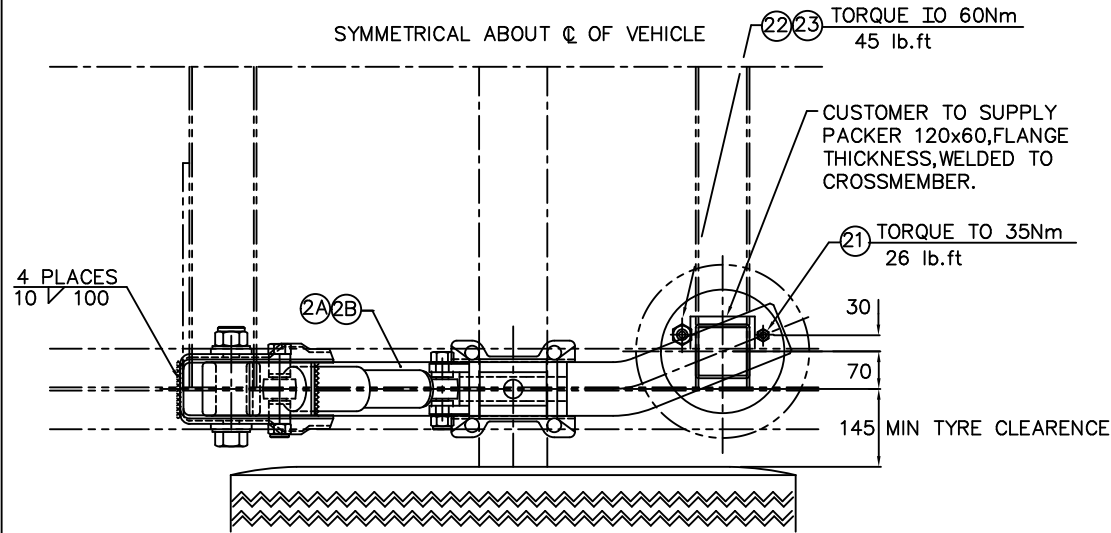
FOR SUSPENSION GEOMETRY SEE DWG No. 18700

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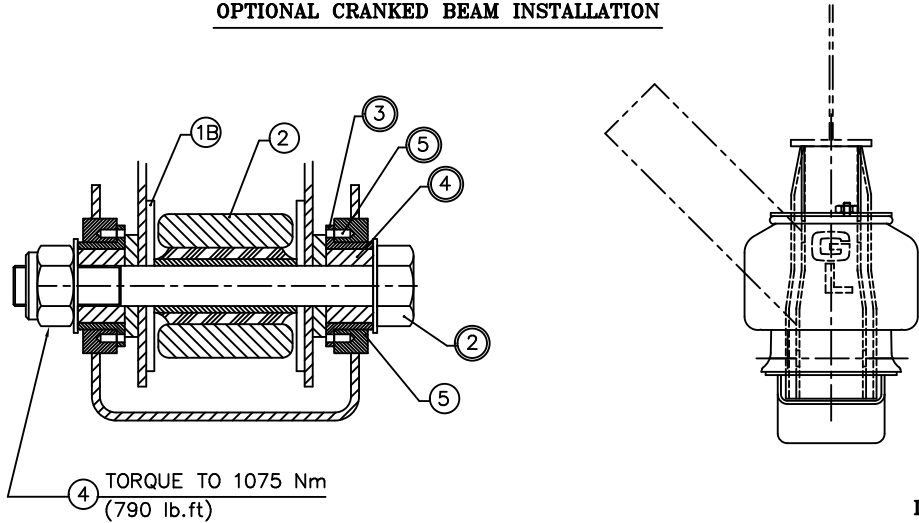
ITEM	PART NO.	QTY	DESCRIPTION	NOTES
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DRAWN BY		RCONDON		AUTHORISED
DATE		22 APR 94		CHECKED
ALL ALTERATIONS TO BE VIA CAD			SCALE	
WEIGHT			SUPERSEDES	
ESTIMATED			ACTUAL	

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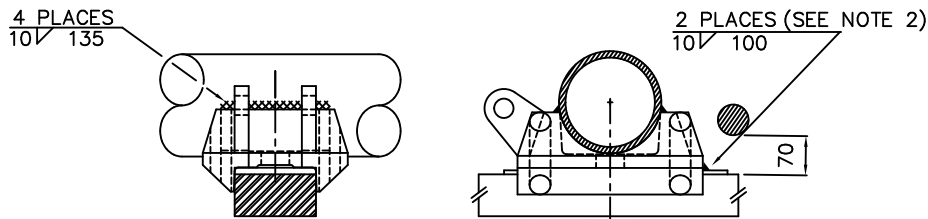
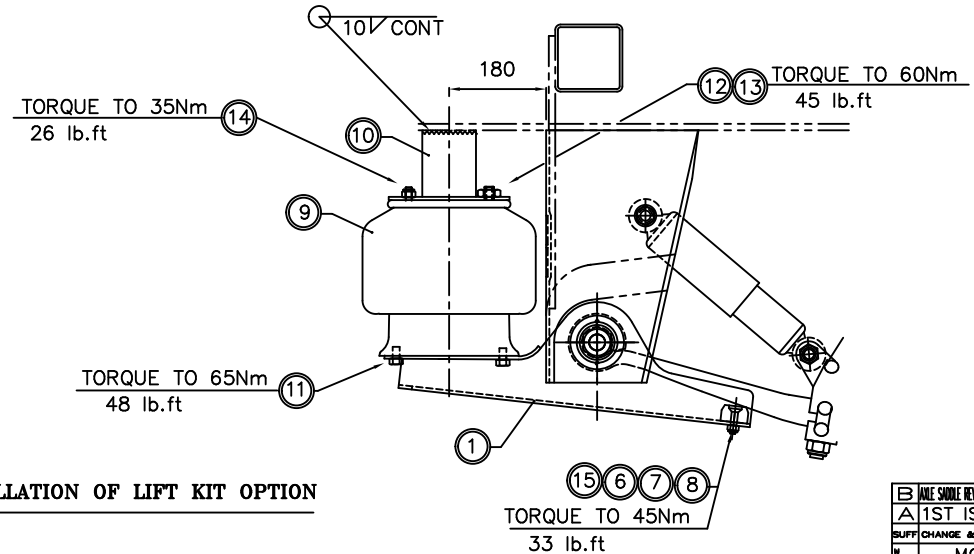
THIRD ANGLE PROJECTION



OPTIONAL CRANKED BEAM INSTALLATION



INSTALLATION OF LIFT KIT OPTION



SADDLE WELDMENT

NOTE 1

AXLE TUBE SHOULD BE PRE-HEATED IF AMBIENT TEMPERATURE IS LESS THAN 68°F, 20°C.

NOTE 2

WELD AFTER TRACKING AXLE. PROTECT SPRING BEAM FROM ARCING AND SPLATTER.

NOTE 3

FOR ITEMS MARKED SEE B.O.M. L602PTS*

FOR ITEMS MARKED SEE B.O.M. PTS*

NOTE 4

ALL BOLTS TO BE TORQUED WITH SUSPENSION IN THE RIDE HEIGHT POSITION

B	DATE SHOWN TO TOWS - 10/07/94		DATE SHOWN TO TOWS - 10/07/94
	A 1ST ISSUE - ENGR		
SUFF. CHANGE & REASON		DISP. ORIGIN & DATE	
DISPOSITION	MODIFICATIONS		
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	MATERIAL		
	SEE BILL OF MATERIALS		
	FINISH		
	TITLE		
	PTS SUSPENSION RANGE		
	DRAWING NO. 18118		
	SHEET 2 OF 2		

DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE	
ALL DIMENSIONS ARE IN MILLIMETRES		UNSPECIFIED TOLERANCES	
ORIGINAL FRAME SIZE 809mm x 562mm		NO DECIMALS ± 1mm	
COMPONENTS TO CARRY PART NO. AT LOCATION		ONE ± 0.5mm	
BATCH DATE		TWO ± 0.2mm	
SUPPLIER CODE		ANGULAR ± 0° - 3'	
BURRS AND SHARP EDGES TO BE REMOVED		ALL ALTERATIONS TO BE VIA CAD	
ESTIMATED ACTUAL		WEIGHT	
DRAWN BY R.CONDON		AUTHORISED PLB	
DATE 22 APR 94		CHECKED MPQ	
SCALE 1:5		SUPERSEDES	

