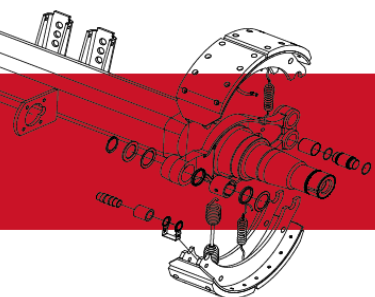




Granning Air Suspension Manual

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)

GRANNING LYNX

PT SERIES SUSPENSION

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.

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^o	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.

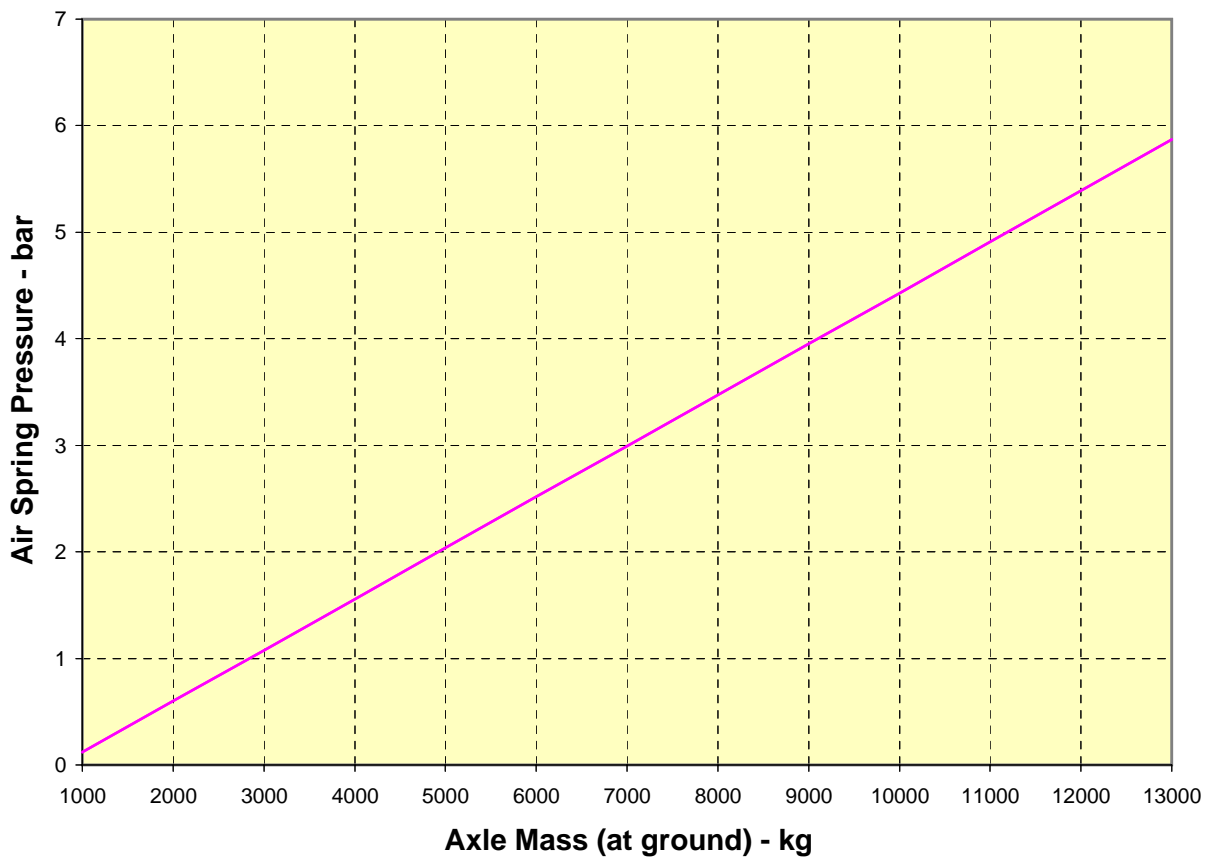
Trailer rides too low

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
2000	0.59879
3000	1.077823
4000	1.556855
5000	2.035887
6000	2.51492
7000	2.993952
8000	3.472984
9000	3.952017
10000	4.431049
11000	4.910081
12000	5.389114
13000	5.868146

DIMENSION L₁ (mm) 527
DIMENSION L₂ (mm) 924

SPRING RATE : 0.570346

AIRSPRING TYPE : IT19F-7

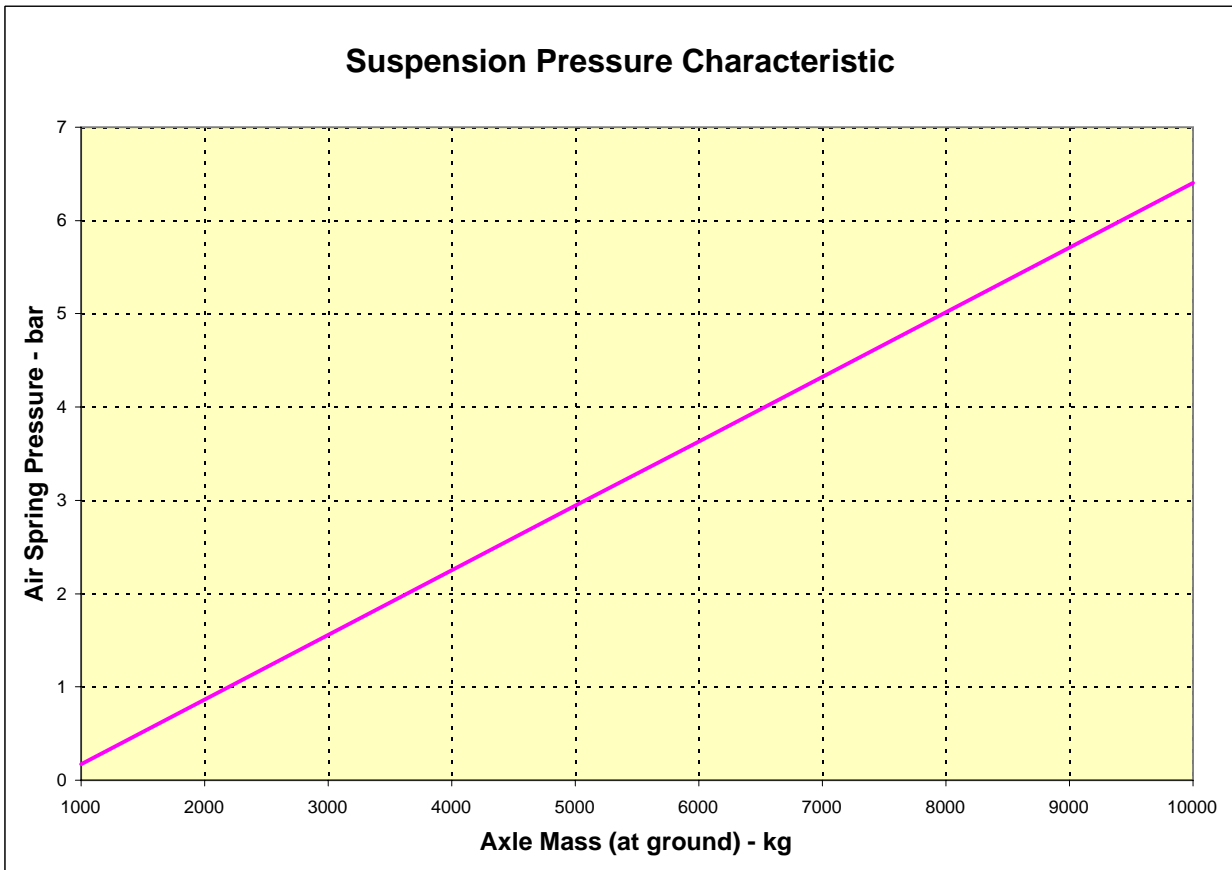
MAX LOAD (N) 40180

MIN LOAD (N) 16820

MAX PRESS (bar) 7

MIN PRESS (bar) 3

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.

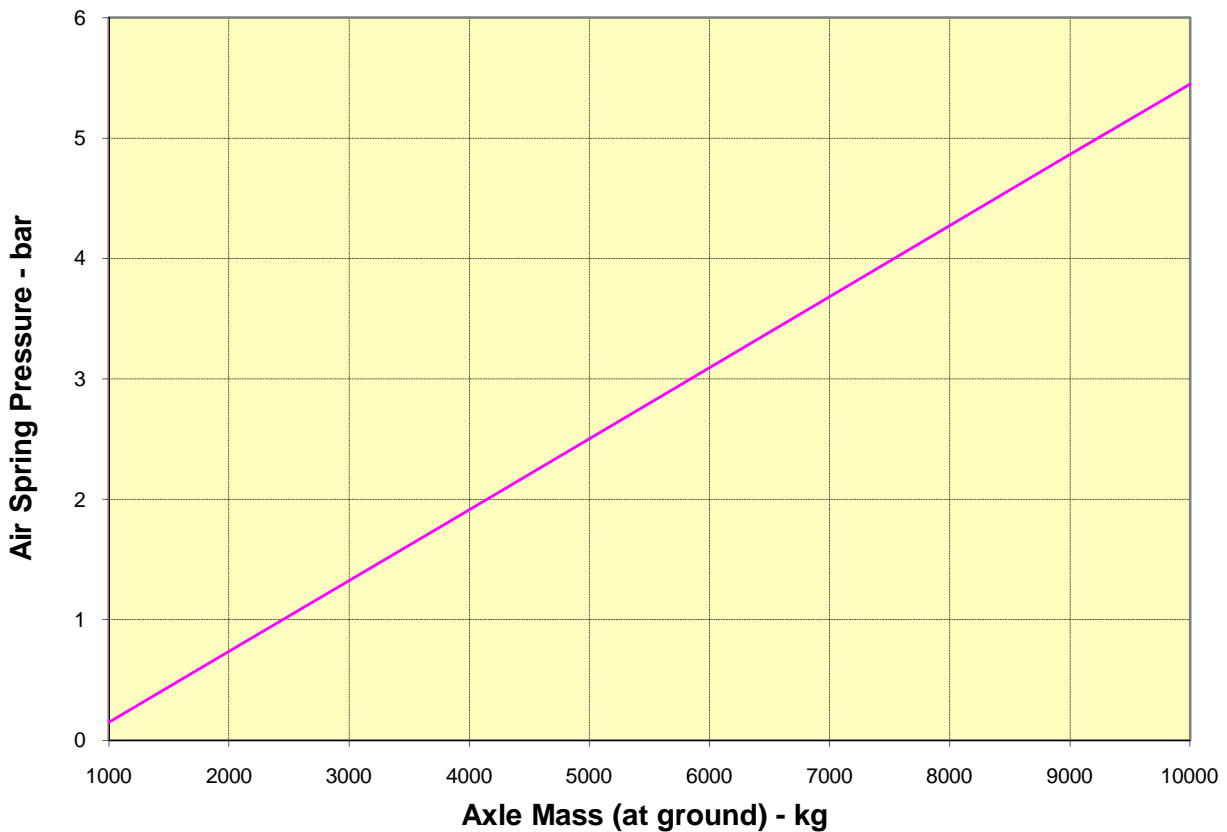
This characteristic assumes an unsprung mass of 750kg.

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	AIRSPRING TYPE :	IT15MP-7
7000	4.32473		
8000	5.016687	MAX LOAD (N)	29500
9000	5.708644	MIN LOAD (N)	13000
10000	6.400601	MAX PRESS (bar)	7
11000	7.092558	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

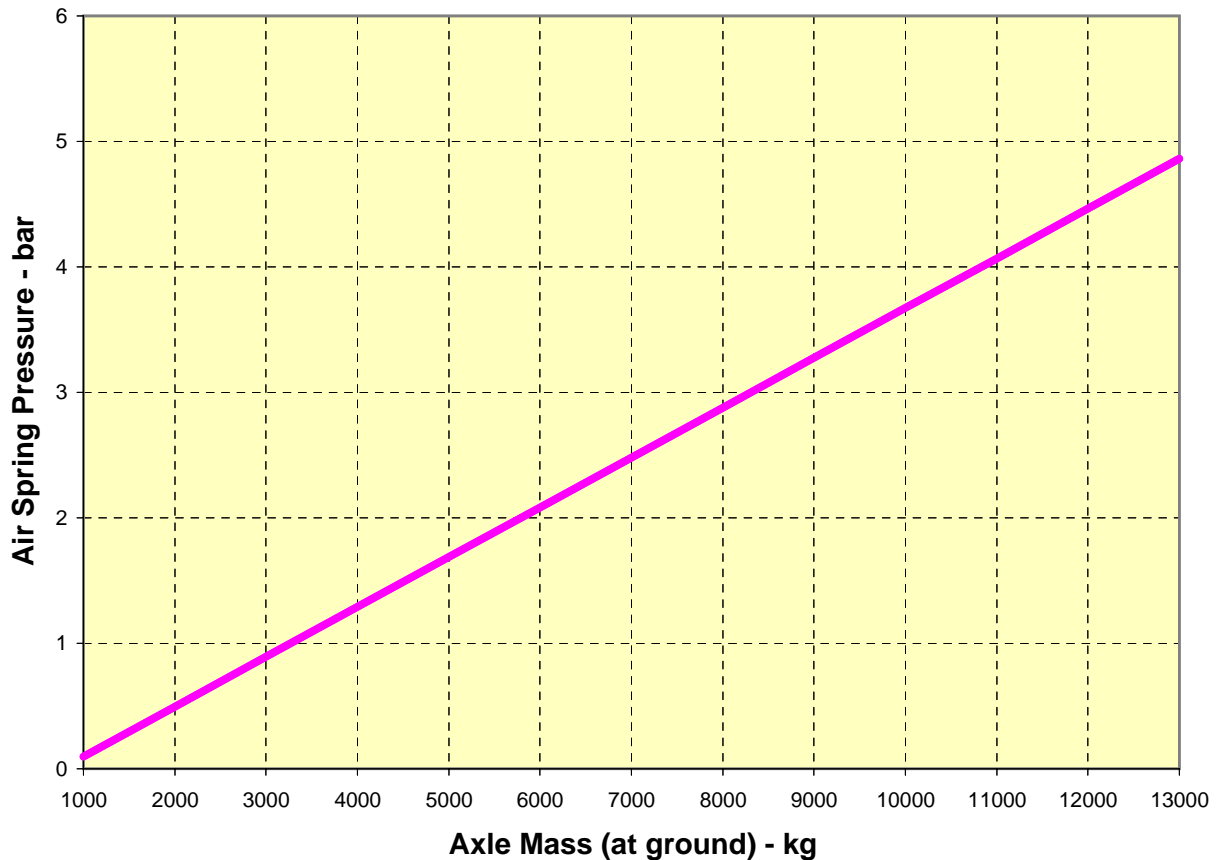
The above characteristic is intended as a guide, manufacturing tolerances on the componentry may cause individual suspensions to vary. To obtain a high degree of accuracy requires that the suspension be calibrated over a flat and accurate scale.

This characteristic assumes an unsprung mass of 750kg.

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
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

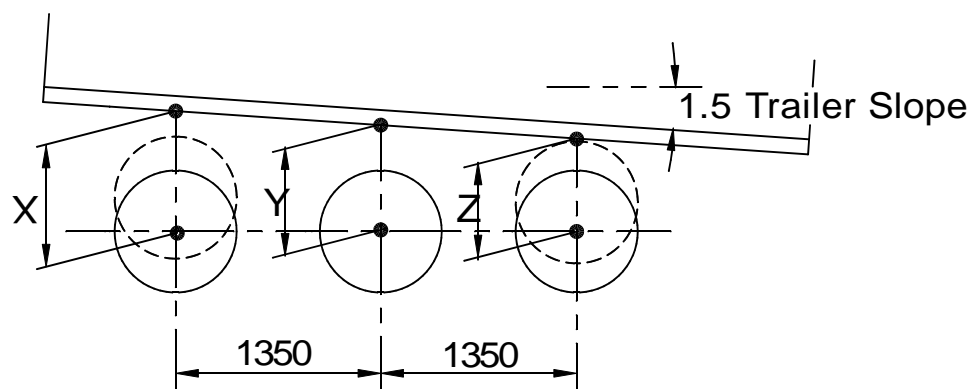
MODEL	RIDE HEIGHT STANDARD	RIDE HEIGHT MAXIMUM	RIDE HEIGHT MINIMUM	JOUNCE ▲	REBOUND ▼	PEDESTAL SIDE LIFT
PTL21	205 - - -	- 205 - -	- - 170 * 160	110 110 65 55	65 65 110 120	11914
PTL26	255 - -	- 255 -	- - 210	110 110 65	65 65 110	11914
PTL30	300 - -	- 300 -	- - 255	110 110 65	65 65 110	11914
PTS34	340 - -	- 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
 Y = 430 - Use PTS43 suspension
 Z = 405 - Use PTS43 suspension

Front axle lift available 150 mm

Rear axle lift available 100 mm

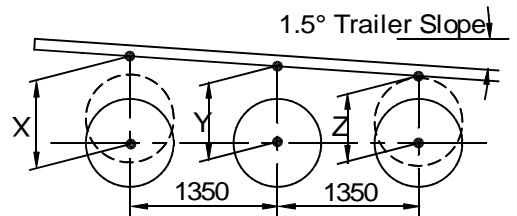
PT(D) SUSPENSION GEOMETRY

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. DIMA'		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						


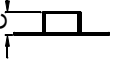
Level Trailers- Fit same suspension on all Axles.
 Note: Sloping Tipper has level bottom flange over suspension.
 SLOPING TRAILERS with up to 2 degree slope, drop one suspension size on rear axle. For greater slopes consult Granning engineering dept.
 TIPPERS, TANKERS, & ALL SPECIALS. ALWAYS FIT WRAPPERS 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

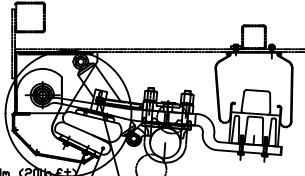
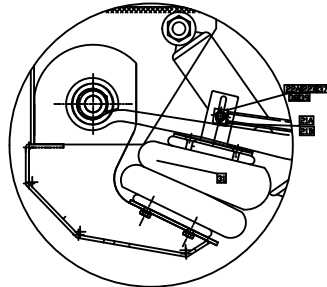
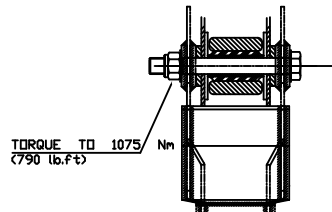


SUSPENSION GEOMETRY

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	?

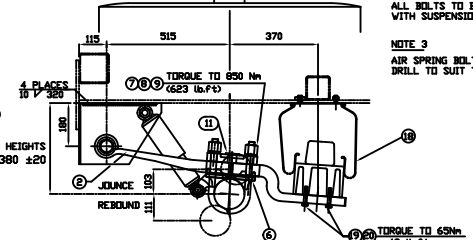
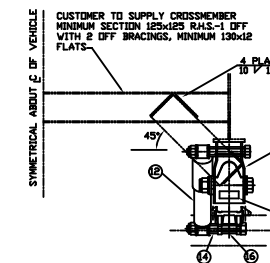
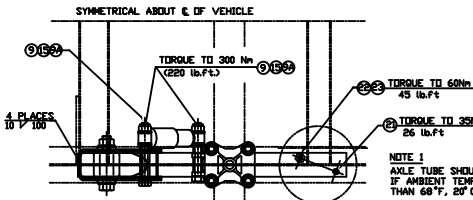
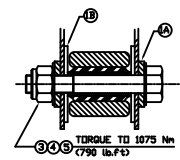
OPTIONAL L702PTSL BOLT ON TWIN LIFT ASSEMBLY



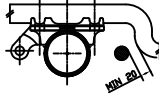
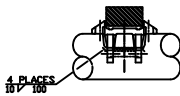
NOTE 1: PART NUMBER REFER TO L702PTSL BOLT ON LIFT ASSEMBLY.
NOTE 2: FIT ONE ASSEMBLY AS SHOWN TO EACH HANGER OF LIFTING AXLE.

REV	DESCRIPTION	DATE
A	ISSUE	
B	REVISED	
C	REVISED	
D	REVISED	
E	REVISED	
F	REVISED	
G	REVISED	
H	REVISED	
I	REVISED	
J	REVISED	
K	REVISED	
L	REVISED	
M	REVISED	
N	REVISED	
O	REVISED	
P	REVISED	
Q	REVISED	
R	REVISED	
S	REVISED	
T	REVISED	
U	REVISED	
V	REVISED	
W	REVISED	
X	REVISED	
Y	REVISED	
Z	REVISED	

DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE	DRAWN BY CALLAN	CHECKED	DATE 19APR2008	SCALE 1:4	TITLE INSTALLATION PTS 38 - 80L
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION 0	UNSPECIFIED TOLERANCES: ± 0.25mm	ALL ALTERATIONS TO BE VIA CAD	VELOCITY ESTIMATED ACTUAL	WEIGHT	DRAWING NO. 18176
ORIGINAL FRAME SIZE 809mm x 562mm	SPALLER ONE TWIN & SHARP EDGES TO BE REMOVED	ANGULAR ± 0°- 3'				SHEET 3 OF 3 A1

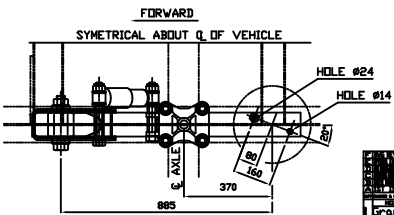


NOTE 1: AXLE TUBE SHOULD BE PRE-HEATED IF AMBIENT TEMPERATURE IS LESS THAN 68°F, 20°C.
NOTE 2: ALL BOLTS TO BE TORQUED WITH SUSPENSION IN THE RIDE HEIGHT POSITION.
NOTE 3: AIR SPRING BOLTS DIRECT TO FLANGE. DRILL TO SUIT TOP PLATE.



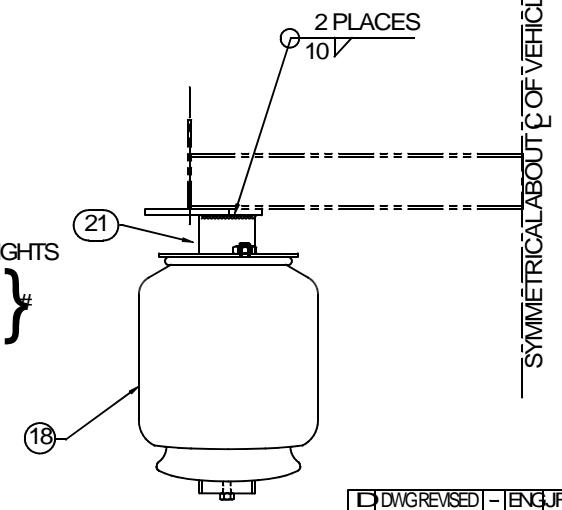
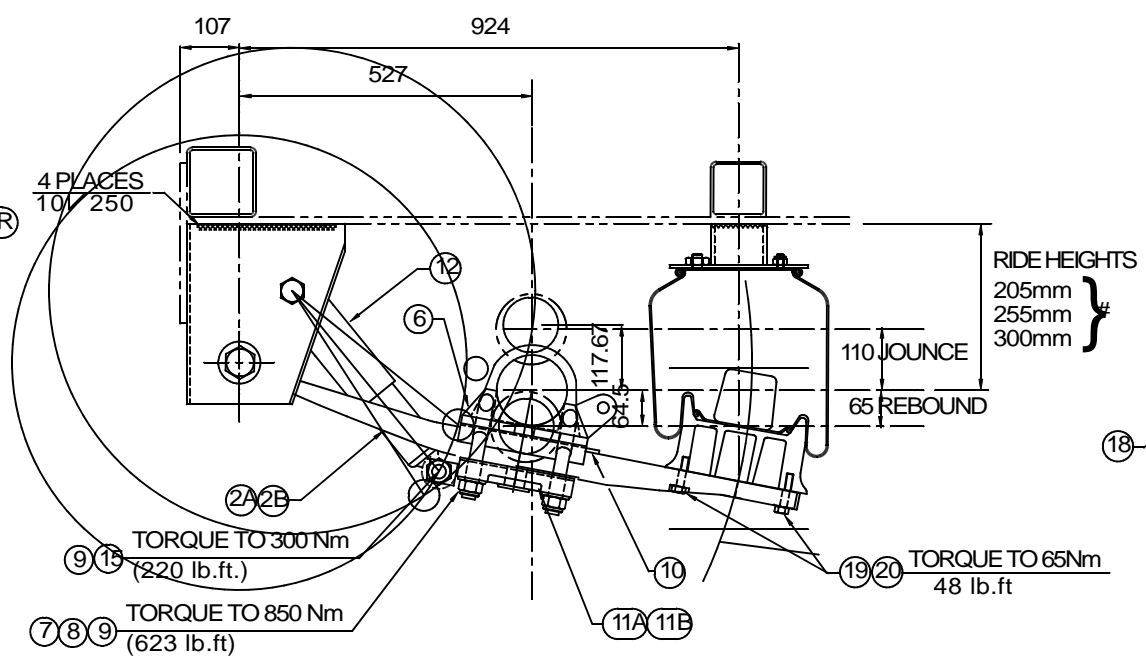
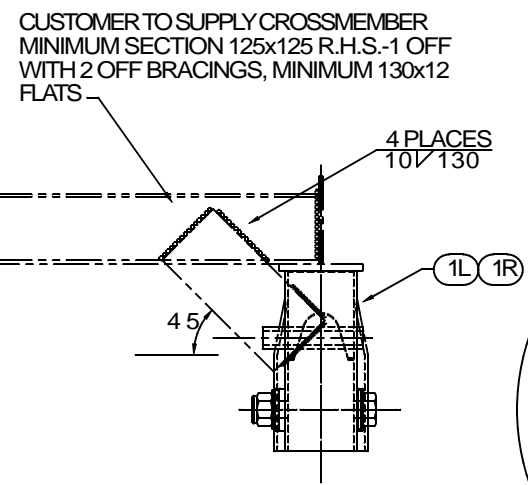
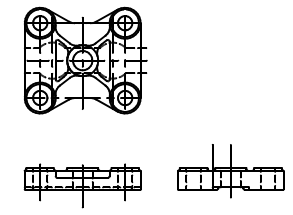
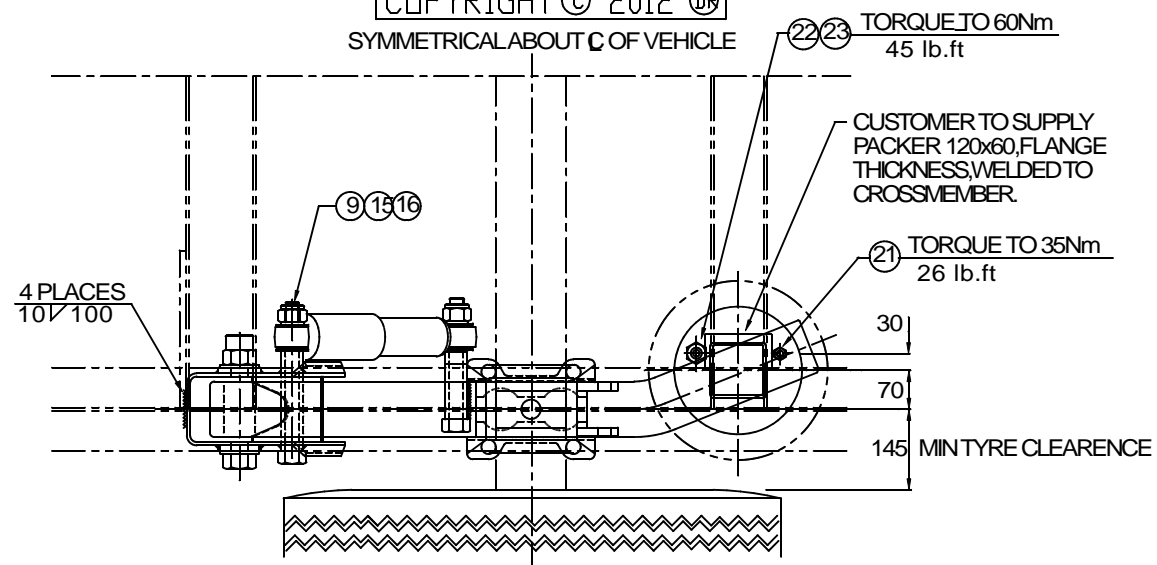
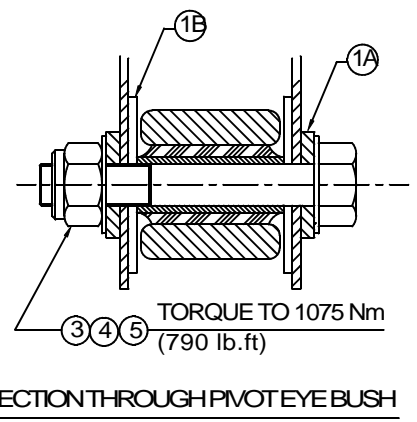
REV	DESCRIPTION	DATE
A	ISSUE	
B	REVISED	
C	REVISED	
D	REVISED	
E	REVISED	
F	REVISED	
G	REVISED	
H	REVISED	
I	REVISED	
J	REVISED	
K	REVISED	
L	REVISED	
M	REVISED	
N	REVISED	
O	REVISED	
P	REVISED	
Q	REVISED	
R	REVISED	
S	REVISED	
T	REVISED	
U	REVISED	
V	REVISED	
W	REVISED	
X	REVISED	
Y	REVISED	
Z	REVISED	

DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE	DRAWN BY SCOTT	CHECKED	DATE 07DEC1998	SCALE 1:5	TITLE INSTALLATION PTS 38 - 80L
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION 0	UNSPECIFIED TOLERANCES: ± 0.25mm	ALL ALTERATIONS TO BE VIA CAD	VELOCITY ESTIMATED ACTUAL	WEIGHT	DRAWING NO. 18176
ORIGINAL FRAME SIZE 809mm x 562mm	SPALLER ONE TWIN & SHARP EDGES TO BE REMOVED	ANGULAR ± 0°- 3'				SHEET 1 OF 3 A1



REV	DESCRIPTION	DATE
A	ISSUE	
B	REVISED	
C	REVISED	
D	REVISED	
E	REVISED	
F	REVISED	
G	REVISED	
H	REVISED	
I	REVISED	
J	REVISED	
K	REVISED	
L	REVISED	
M	REVISED	
N	REVISED	
O	REVISED	
P	REVISED	
Q	REVISED	
R	REVISED	
S	REVISED	
T	REVISED	
U	REVISED	
V	REVISED	
W	REVISED	
X	REVISED	
Y	REVISED	
Z	REVISED	

DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE	DRAWN BY SCOTT	CHECKED	DATE 07DEC1998	SCALE 1:5	TITLE INSTALLATION PTS 38 - 80L
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION 0	UNSPECIFIED TOLERANCES: ± 0.25mm	ALL ALTERATIONS TO BE VIA CAD	VELOCITY ESTIMATED ACTUAL	WEIGHT	DRAWING NO. 18176
ORIGINAL FRAME SIZE 809mm x 562mm	SPALLER ONE TWIN & SHARP EDGES TO BE REMOVED	ANGULAR ± 0°- 3'				SHEET 1 OF 3 A1



NOTES.

- # FOR SUSPENSION GEOMETRY SEE DWG No. 18700
- SEE SHEET 2 FOR ALTERNATIVE SADDLE LOCATION.

D	DWG REVISED	-	ENG JF
C	ALTERNATIVE SADDLE	-	ENG DS
B	REDRAWN	-	ENG JF
A	1ST ISSUE	-	ENG JF

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MATERIAL
 SEE BILL OF MATERIALS
 FINISH

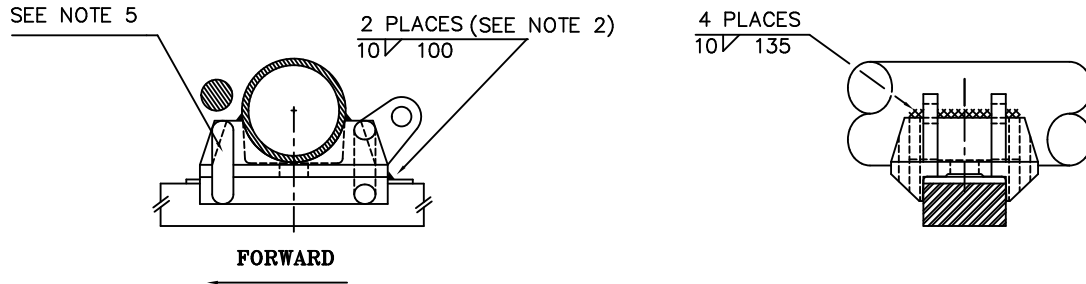
TITLE
 INSTALLATION
 PTL SUSPENSION RANGE
 DRAWING NO. 18109

SHEET 1 OF 2

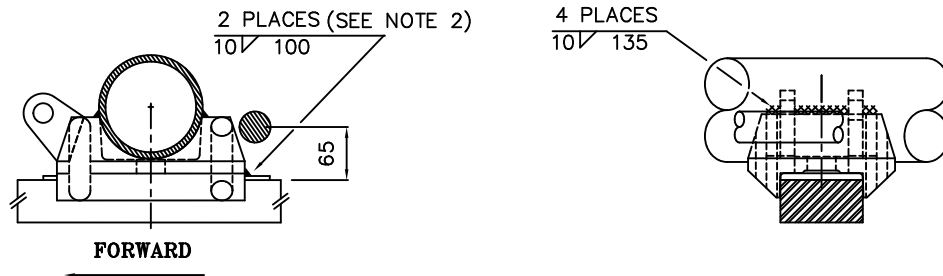
DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE	
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION	UNSPECIFIED TOLERANCES	ALL ALTERATIONS TO BE VIA CAD
ORIGINAL FRAME SIZE 809mm x 562mm	BATCH DATE 9	NO DECIMALS ± 1mm	SCALE 1:5
	SUPPLIER CODE 8	ONE ± 0.5mm	SUPERSEDES
	BURRS AND SHARP EDGES TO BE REMOVED	TWO ± 0.2mm	ESTIMATED ACTUAL
		ANGULAR ± 0° - 3'	

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY: RCONDON		AUTHORISED: PLB		
DATE: 28 APR 94		CHECKED: MPQ		

SADDLE WELDMENT



ALTERNATIVE WELDMENT FOR BMX AXLE



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

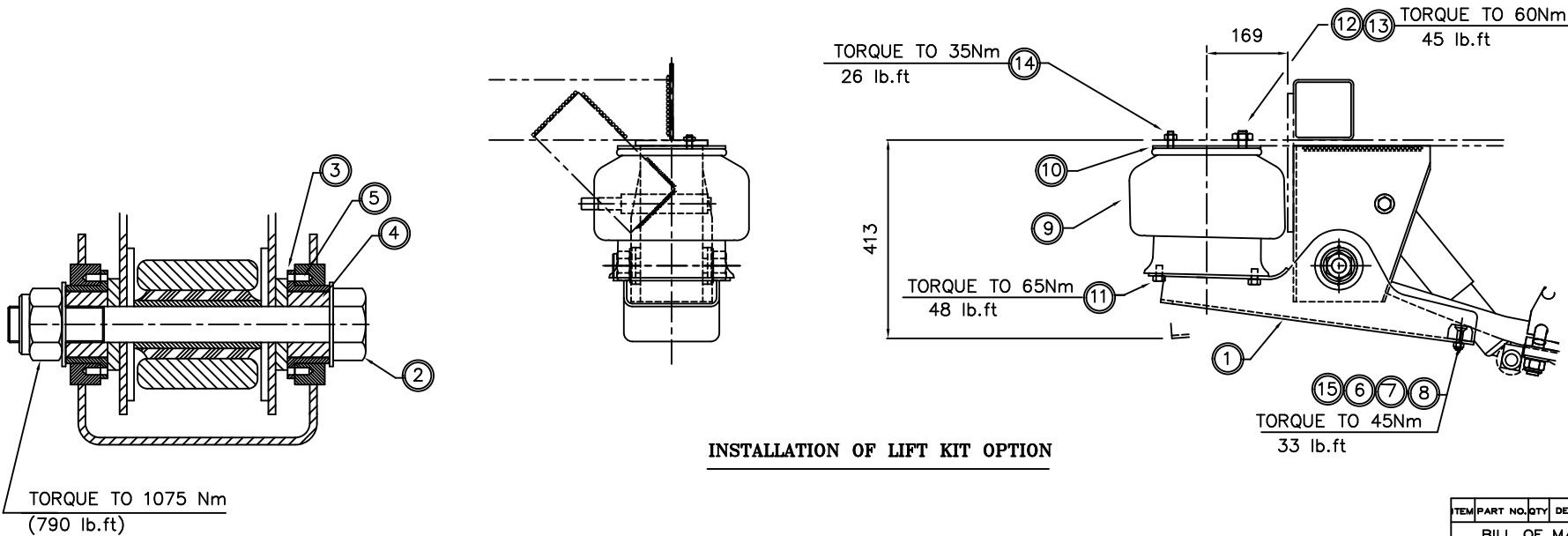
FOR ITEMS MARKED ○ SEE B.O.M. L602PTL*

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



INSTALLATION OF LIFT KIT OPTION

D	DWG REVISED	-	ENGFJ
C	ALTERNATIVE SADDLE WELDMENT ADDED	-	ENGRS
B	REDRAWN	-	ENGRS
A	1ST ISSUE	-	ENGRS

SUFF CHANGE & REASON DISPO ORIGINAL BY DATE

MODIFICATIONS

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DISPOSITION	MATERIAL
	SEE BILL OF MATERIALS
	FINISH

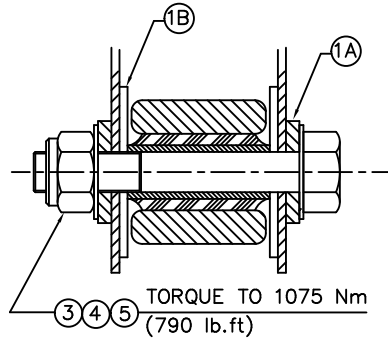
TITLE	INSTALLATION
	PTL SUSPENSION RANGE
DRAWING NO.	18109
SHEET	2 OF 2

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY	R.CONDON	AUTHORISED	PLB	
DATE	28 APR 94	CHECKED	MPQ	
		SCALE	1:5	
		SUPERSEDES		

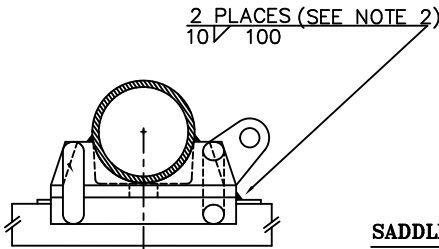
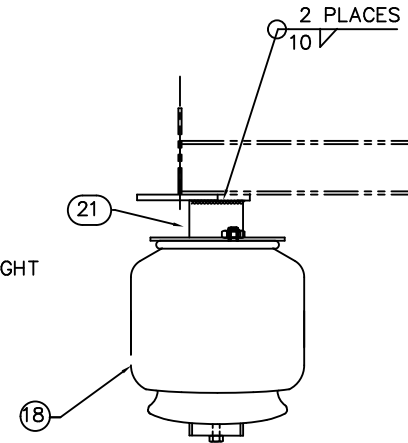
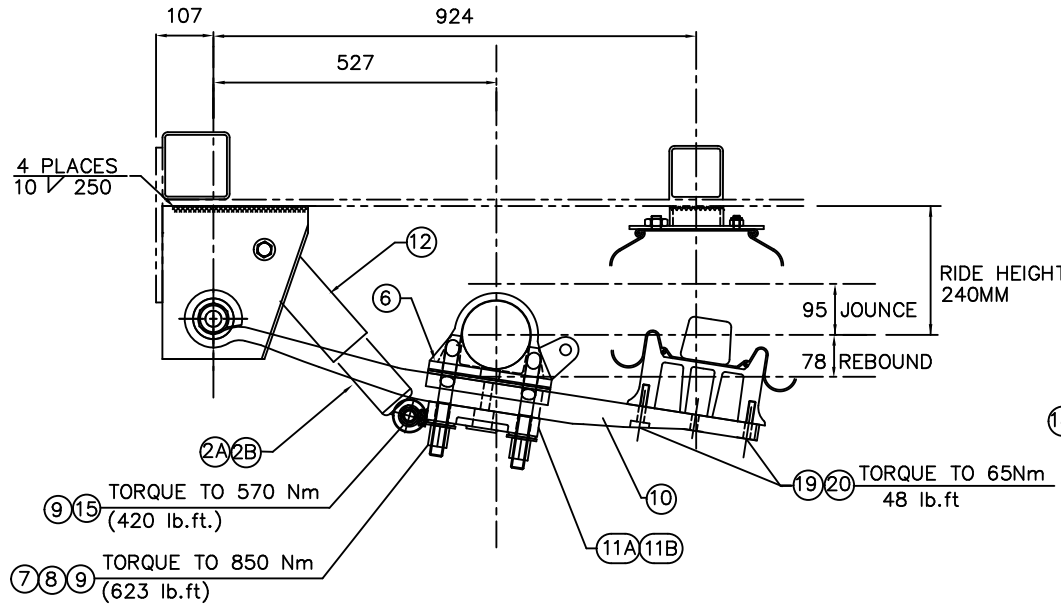
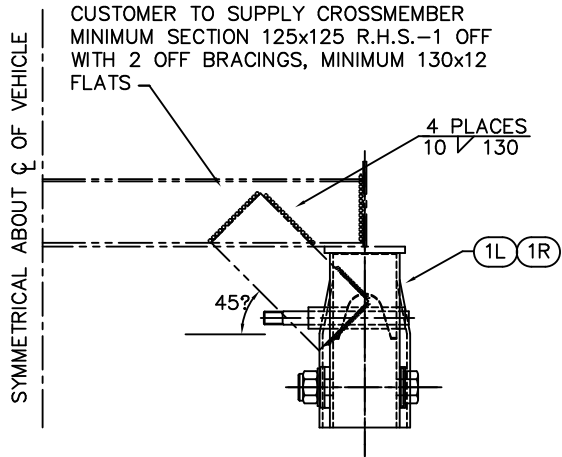
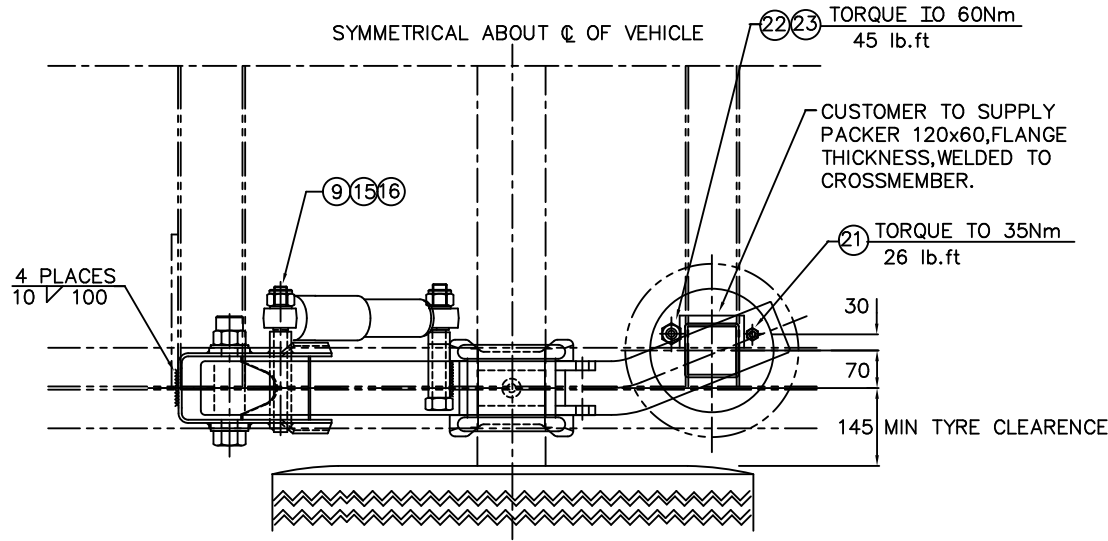
DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE	
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION	UNSPECIFIED TOLERANCES NO DECIMALS ± 1mm	ALL ALTERATIONS TO BE VIA CAD
ORIGINAL FRAME SIZE 809mm x 562mm	SUPPLIER CODE	ONE ± 0.5mm	WEIGHT ESTIMATED ACTUAL
	BURRS AND SHARP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

SECTION THROUGH PIVOT EYE BUSH

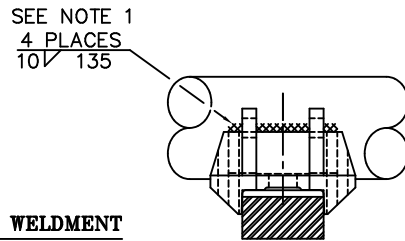
TORQUE TO 1075 Nm (790 lb.ft)



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

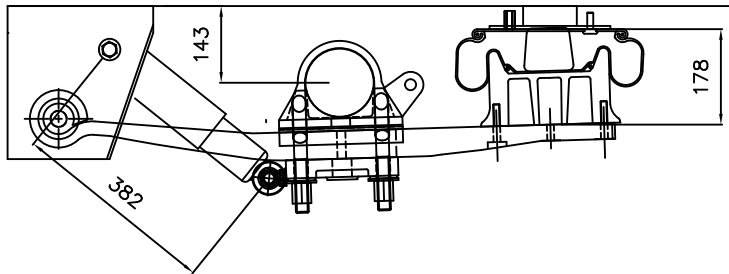
COMPONENTS TO CARRY
PART NO. AT LOCATION
BATCH DATE
SUPPLIER CODE
BURRS AND SHARP EDGES
TO BE REMOVED

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

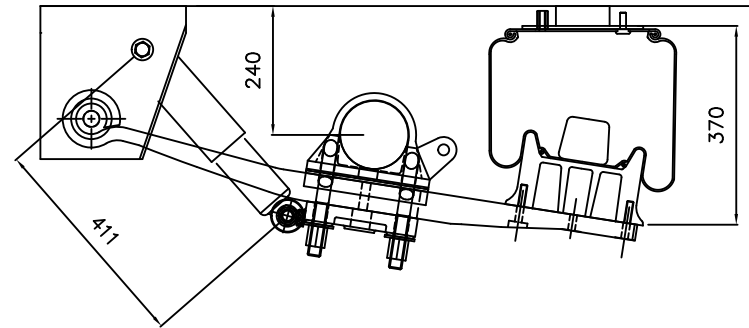
ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY P.SLATOR AUTHORIZED MPQ				
DATE 22 NOV 11 CHECKED MPQ				
SCALE				
TO BE VIA CAD SUPERSEDES				
ESTIMATED ACTUAL				

DISPOSITION	
1	1ST ISSUE
MODIFICATIONS	
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MATERIAL	
SEE BILL OF MATERIALS	
FINISH	
TITLE	
INSTALLATION	
PTL26-105A	
DRAWING NO. 18313	
SHEET 1 OF 2	

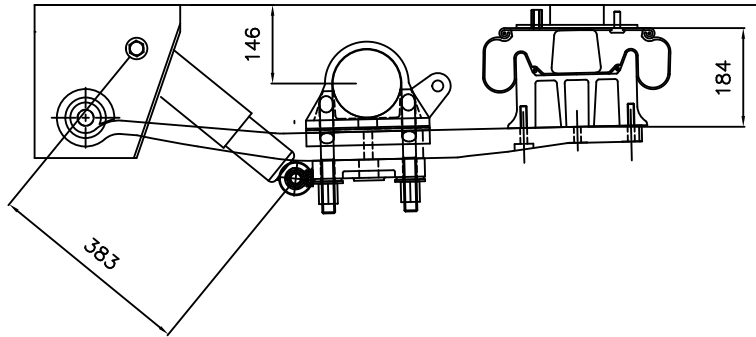
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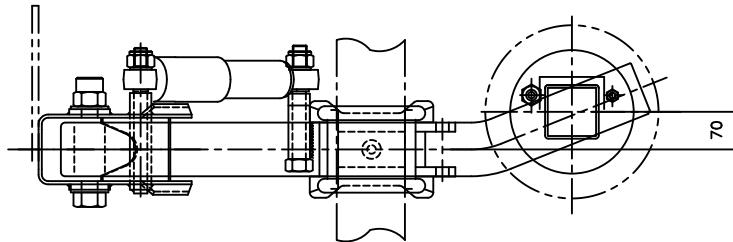
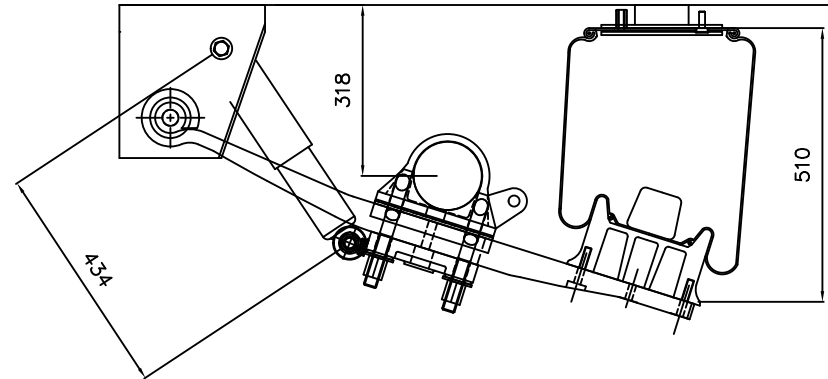
RIDE HEIGHT



BUMP



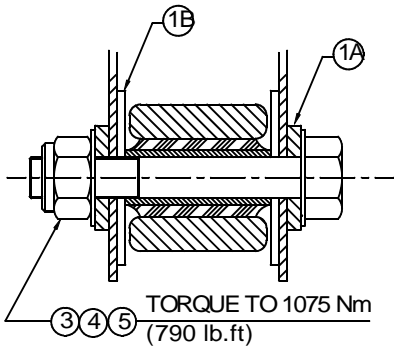
MAXIMUM



C	UP VIEW REVISION 17 25/10/11	ENGJF	2011
B	USED FROM PREVIOUS EDITION	ENGJF	2011
A	1ST ISSUE	10/11/11	PS/2011
SUFF CHANGE & REASON DISP ORIGIN BY DATE			
DISPOSITION			
MODIFICATIONS			
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MATERIAL			
SEE BILL OF MATERIALS			
FINISH			
TITLE			
POSITIONS			
PTL26-105A			
DRAWING NO. 18313			
SHEET 2 OF 2 A1			

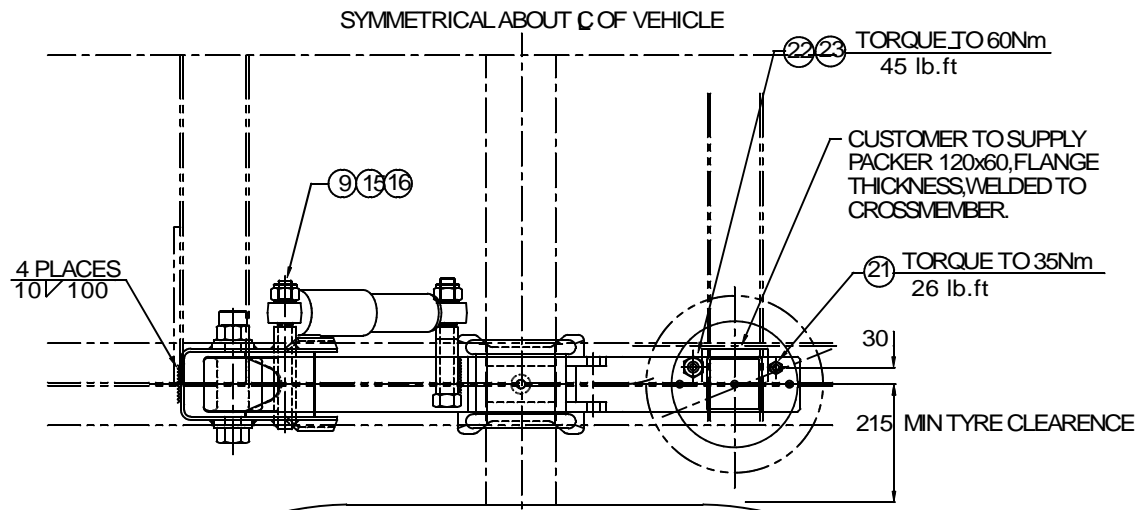
DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR GRANNING SUSPENSIONS	
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION	UNSPECIFIED TOLERANCES	ALL ALTERATIONS TO BE VIA CAD
ORIGINAL FRAME SIZE 809mm x 562mm	BATCH DATE	NO DECIMALS ± 1mm	DATE 22/11/11
	SUPPLIER CODE	ONE ± 0.5mm	CHECKED MPQ
	BURRS AND SHARP EDGES TO BE REMOVED	TWO ± 0.2mm	SCALE
		ANGULAR ± 0° - 3'	SUPERSEDES
			ESTIMATED ACTUAL

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY P.SLATOR AUTHORIZED MPQ				
DATE 22/11/11 CHECKED MPQ				
SCALE				
SUPERSEDES				



TORQUE TO 1075 Nm
(790 lb.ft)

SECTION THROUGH PIVOT EYE BUSH



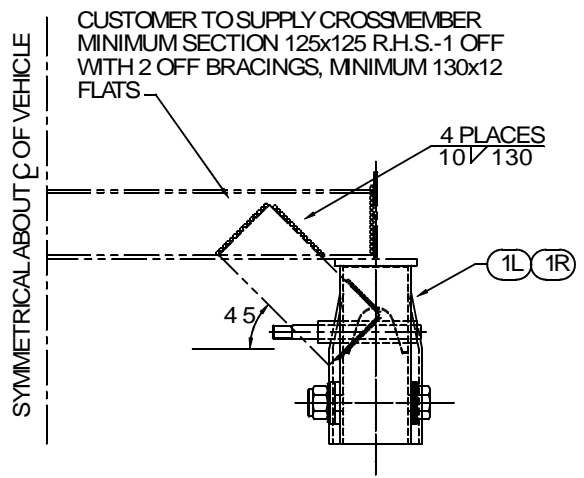
SYMMETRICAL ABOUT C OF VEHICLE

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



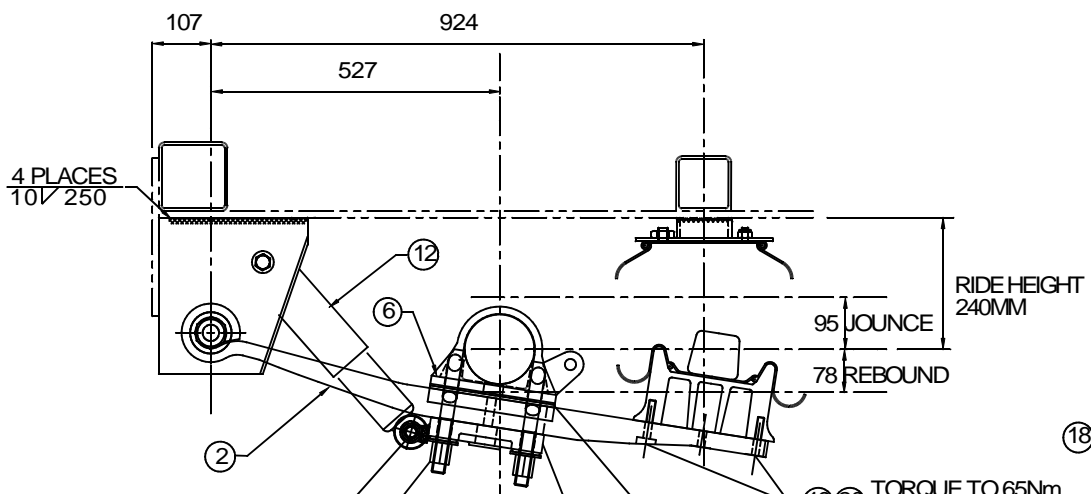
CUSTOMER TO SUPPLY CROSSMEMBER
MINIMUM SECTION 125x125 R.H.S.-1 OFF
WITH 2 OFF BRACINGS, MINIMUM 130x12
FLATS

4 PLACES
10/130

1L 1R

45

SYMMETRICAL ABOUT C OF VEHICLE



4 PLACES
10/250

TORQUE TO 570 Nm
(420 lb.ft)

TORQUE TO 850 Nm
(623 lb.ft)

TORQUE TO 65Nm
48 lb.ft

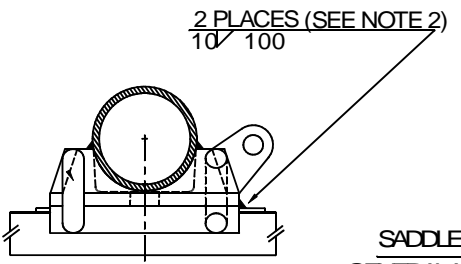
RIDE HEIGHT
240MM

95 JOUNCE

78 REBOUND

2 PLACES
10/

SYMMETRICAL ABOUT C OF VEHICLE



SEE NOTE 1
4 PLACES
10/135

SADDLE WELDMENT
GENERAL ARRANGEMENT
(NOT TO SCALE)

A 1ST ISSUE		DATE	2011/11/22	BY	PSLATOR
CHANGE & REASON	DISP	ORIGIN	DATE		
MODIFICATIONS					
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MATERIAL					
SEE BILL OF MATERIALS					
FINISH					
TITLE					
INSTALLATION					
PTL26-85A					
DRAWING NO. 18321					
SHEET 1 OF 2					

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ORIGINAL FRAME SIZE 809mm x 562mm	BATCH DATE	ONE ± 0.5mm	SCALE
	SUPPLIER CODE	TWO ± 0.2mm	ESTIMATED ACTUAL
	BURRS AND SHARP EDGES TO BE REMOVED	ANGULAR ± 0° - 3'	SUPERSEDES

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY		AUTHORISED		MPQ
DATE		CHECKED		MPQ
22 NOV 11				

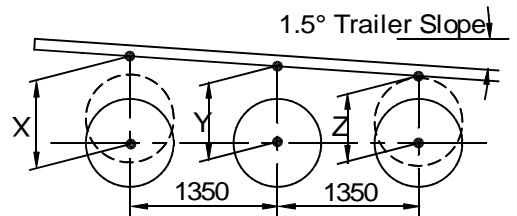
PT(D) SUSPENSION GEOMETRY

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. DIMA'		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						


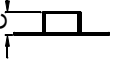
Level Trailers- Fit same suspension on all Axles.
 Note: Sloping Tipper has level bottom flange over suspension.
 SLOPING TRAILERS with up to 2 degree slope, drop one suspension size on
 rear axle. For greater slopes consult Granning engineering dept.
 TIPPERS, TANKERS, & ALL SPECIALS. ALWAYS FIT WRAPPERS 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

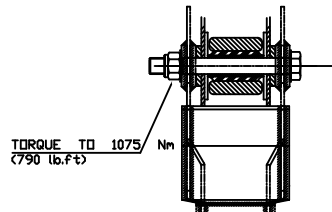


SUSPENSION GEOMETRY

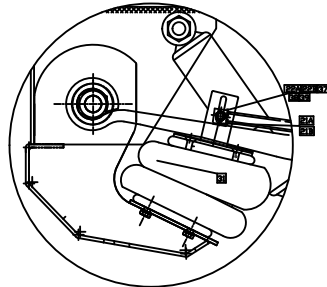
NOTE: All dimensions are in millimetres (mm)

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	?

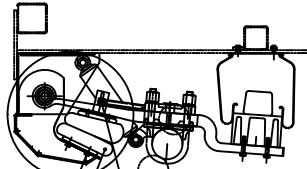
OPTIONAL L702PTSL BOLT ON TWIN LIFT ASSEMBLY



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
A	ISSUE	
B	REVISED	
C	REVISED	
D	REVISED	
E	REVISED	
F	REVISED	
G	REVISED	
H	REVISED	
I	REVISED	
J	REVISED	
K	REVISED	
L	REVISED	
M	REVISED	
N	REVISED	
O	REVISED	
P	REVISED	
Q	REVISED	
R	REVISED	
S	REVISED	
T	REVISED	
U	REVISED	
V	REVISED	
W	REVISED	
X	REVISED	
Y	REVISED	
Z	REVISED	

MODIFICATIONS

GranningAxles

Customer Support Center, Inc.
10000 Highway 100
Houston, Texas 77036
Tel: 281-297-8800
Fax: 281-297-8801
www.granningaxles.com

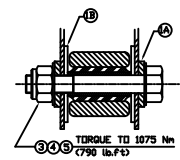
ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO BE TAKEN TO THE SURFACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO BE TAKEN TO THE SURFACE UNLESS OTHERWISE SPECIFIED.

MATERIAL
SEE BILL OF MATERIALS

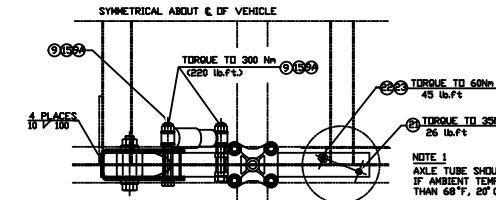
FINISH

DATE: 19APR2008
SCALE: 1:4
TITLE: INSTALLATION
PTS 38 - 80L
DRAWING NO. 18176
SHEET 3 OF 3 A1

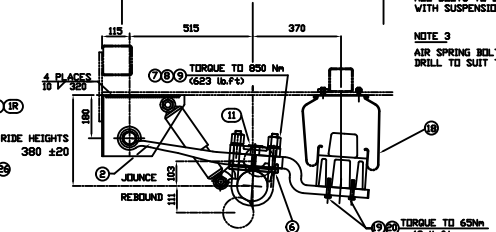
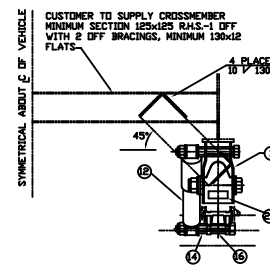
DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE	DRAWN BY: CALLAN	CHECKED:	DATE: 19APR2008	SCALE: 1:4	TITLE: INSTALLATION PTS 38 - 80L DRAWING NO. 18176 SHEET 3 OF 3 A1
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION 0	UNSPECIFIED TOLERANCES: ± 0.25mm	NO DECIMALS	± 0.25mm	± 0.25mm	± 0.25mm
ORIGINAL FRAME SIZE: 809mm x 562mm	SPRINGER ONE: TWO	SPRINGER TWO: TWO	SPRINGER THREE: TWO	SPRINGER FOUR: TWO	SPRINGER FIVE: TWO	SPRINGER SIX: TWO
	BLURBS AND SHARP EDGES TO BE REMOVED					



SECTION THROUGH PIVOT EYE BUSH



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.



REV	DESCRIPTION	DATE
A	ISSUE	
B	REVISED	
C	REVISED	
D	REVISED	
E	REVISED	
F	REVISED	
G	REVISED	
H	REVISED	
I	REVISED	
J	REVISED	
K	REVISED	
L	REVISED	
M	REVISED	
N	REVISED	
O	REVISED	
P	REVISED	
Q	REVISED	
R	REVISED	
S	REVISED	
T	REVISED	
U	REVISED	
V	REVISED	
W	REVISED	
X	REVISED	
Y	REVISED	
Z	REVISED	

MODIFICATIONS

GranningAxles

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10000 Highway 100
Houston, Texas 77036
Tel: 281-297-8800
Fax: 281-297-8801
www.granningaxles.com

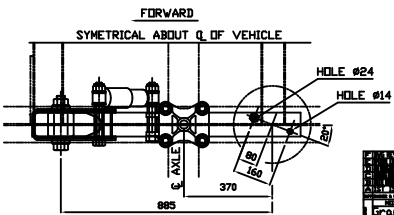
ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO BE TAKEN TO THE SURFACE UNLESS OTHERWISE SPECIFIED.

MATERIAL
SEE BILL OF MATERIALS

FINISH

DATE: 07DEC1998
SCALE: 1:5
TITLE: INSTALLATION
PTS 38 - 80L
DRAWING NO. 18176
SHEET 1 OF 3 A1

DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE	DRAWN BY: SCOTT	CHECKED:	DATE: 07DEC1998	SCALE: 1:5	TITLE: INSTALLATION PTS 38 - 80L DRAWING NO. 18176 SHEET 1 OF 3 A1
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION 0	UNSPECIFIED TOLERANCES: ± 0.25mm	NO DECIMALS	± 0.25mm	± 0.25mm	± 0.25mm
ORIGINAL FRAME SIZE: 809mm x 562mm	SPRINGER ONE: TWO	SPRINGER TWO: TWO	SPRINGER THREE: TWO	SPRINGER FIVE: TWO	SPRINGER SIX: TWO	SPRINGER SEVEN: TWO
	BLURBS AND SHARP EDGES TO BE REMOVED					



REV	DESCRIPTION	DATE
A	ISSUE	
B	REVISED	
C	REVISED	
D	REVISED	
E	REVISED	
F	REVISED	
G	REVISED	
H	REVISED	
I	REVISED	
J	REVISED	
K	REVISED	
L	REVISED	
M	REVISED	
N	REVISED	
O	REVISED	
P	REVISED	
Q	REVISED	
R	REVISED	
S	REVISED	
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Z	REVISED	

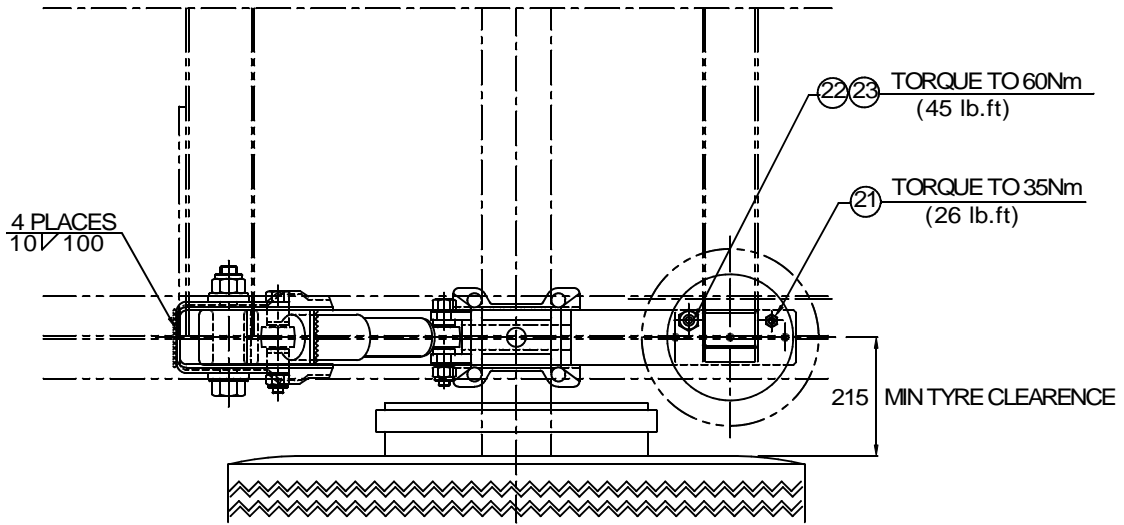
DO NOT SCALE IF IN DOUBT ASK	DESIGNED FOR CUSTOMER USE	DRAWN BY: SCOTT	CHECKED:	DATE: 07DEC1998	SCALE: 1:5	TITLE: INSTALLATION PTS 38 - 80L DRAWING NO. 18176 SHEET 1 OF 3 A1
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION 0	UNSPECIFIED TOLERANCES: ± 0.25mm	NO DECIMALS	± 0.25mm	± 0.25mm	± 0.25mm
ORIGINAL FRAME SIZE: 809mm x 562mm	SPRINGER ONE: TWO	SPRINGER TWO: TWO	SPRINGER THREE: TWO	SPRINGER FIVE: TWO	SPRINGER SIX: TWO	SPRINGER SEVEN: TWO
	BLURBS AND SHARP EDGES TO BE REMOVED					

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THIRD ANGLE PROJECTION

SYMMETRICAL ABOUT C OF VEHICLE

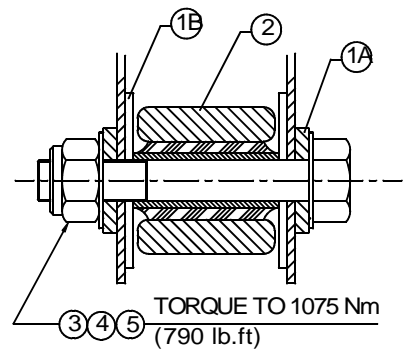
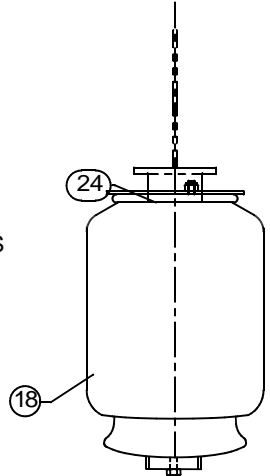
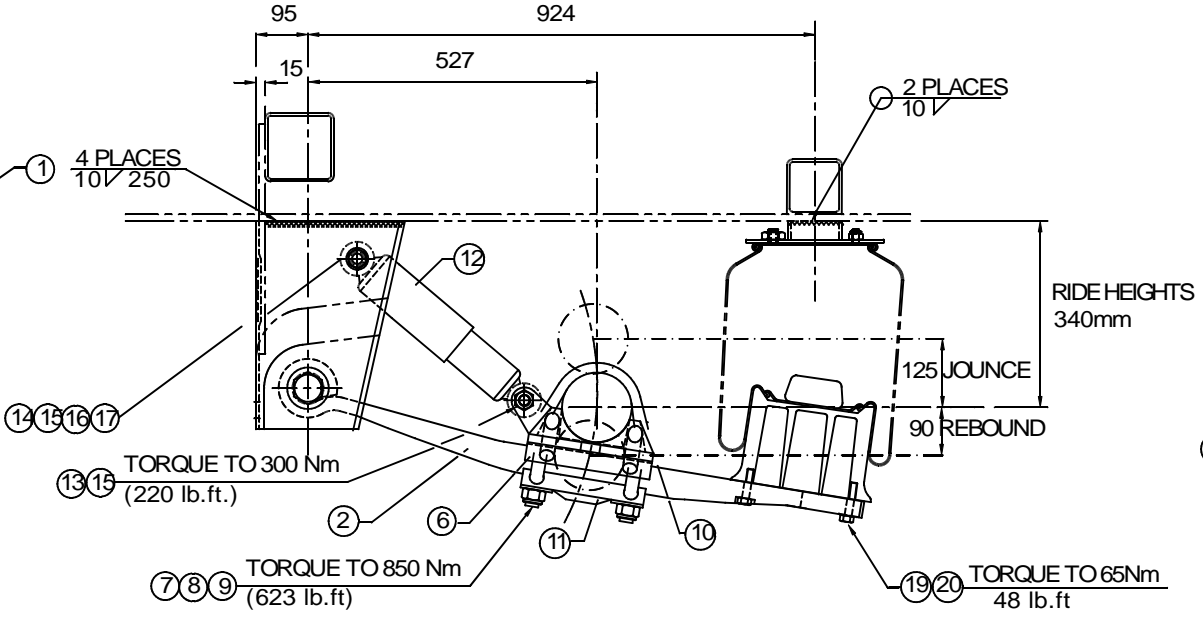
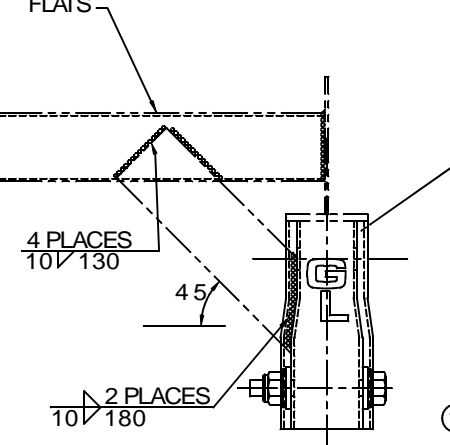
NOTES
 CROSSMEMBER SPECIFICATION APPLIES TO INSTALLATION USING STRAIGHT BEAM PART No. 12135, ONLY.
 FOR CRANKED BEAM SPECIFICATION- SEE SHEET 2.



RIDE HEIGHT RANGE: 280-365MM

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

SYMMETRICAL ABOUT C OF VEHICLE



FOR SUSPENSION GEOMETRY SEE DWG No. 18700

REV	DATE	DESCRIPTION	BY	CHKD
A	1ST ISSUE	ENGR	JF	PLB
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ITEM	PART NO	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY RCONDON			AUTHORISED PLB	
DATE 22 APR 94			CHECKED MPQ	
ESTIMATED WEIGHT			SCALE 1:5	
ACTUAL WEIGHT			SUPERSEDES	

DO NOT SCALE IF IN DOUBT ASK

DESIGNED FOR CUSTOMER USE

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

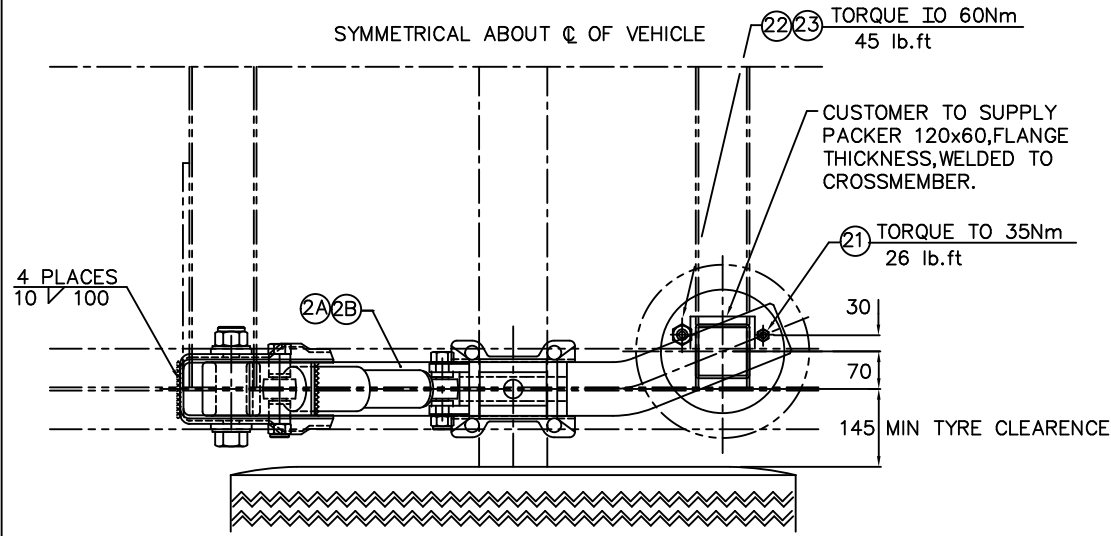
COMPONENTS TO CARRY PART NO. AT LOCATION
 BATCH DATE
 SUPPLIER CODE
 BURRS AND SHARP EDGES TO BE REMOVED

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

ALL ALTERATIONS TO BE VIA CAD
 WEIGHT

SCALE 1:5
 SUPERSEDES

MATERIAL	SEE BILL OF MATERIALS
FINISH	
TITLE	INSTALLATION PTS SUSPENSION RANGE
DRAWING NO.	18118
SHEET	1 OF 2



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

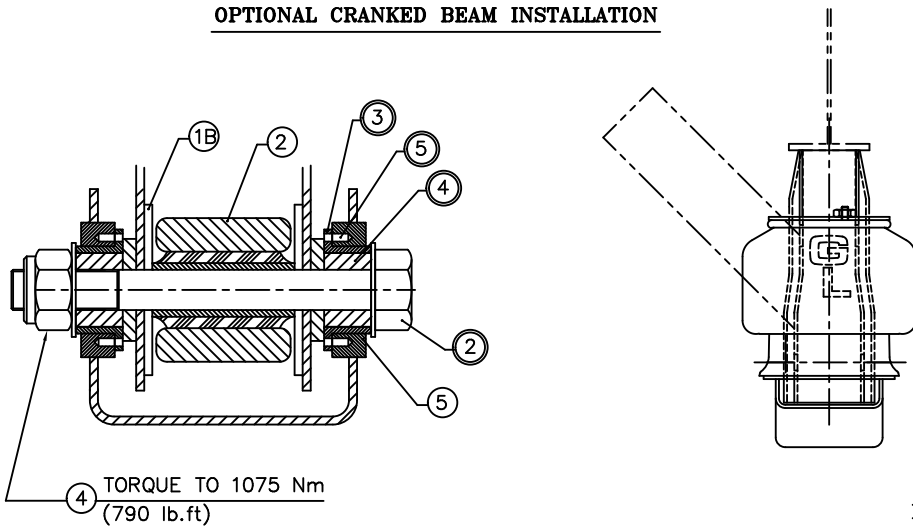
FOR ITEMS MARKED \odot SEE B.O.M. L602PTS*

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

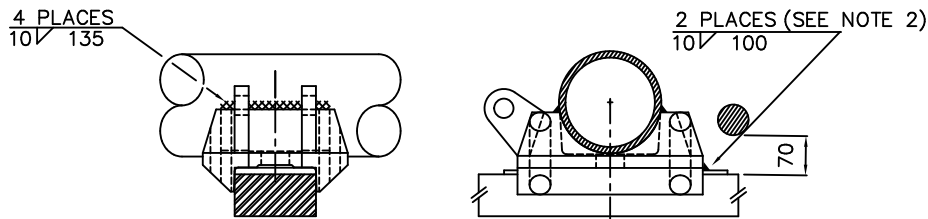
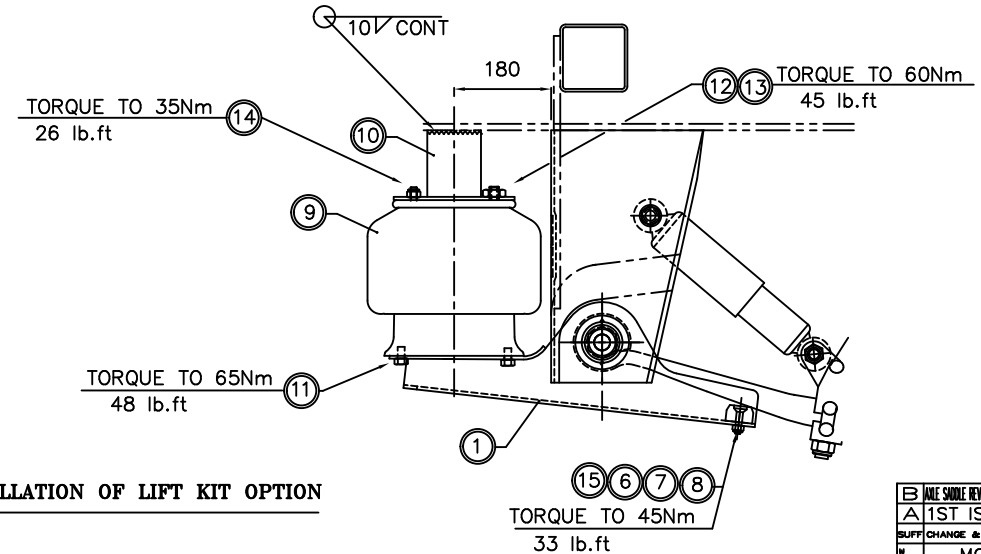
NOTE 4

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

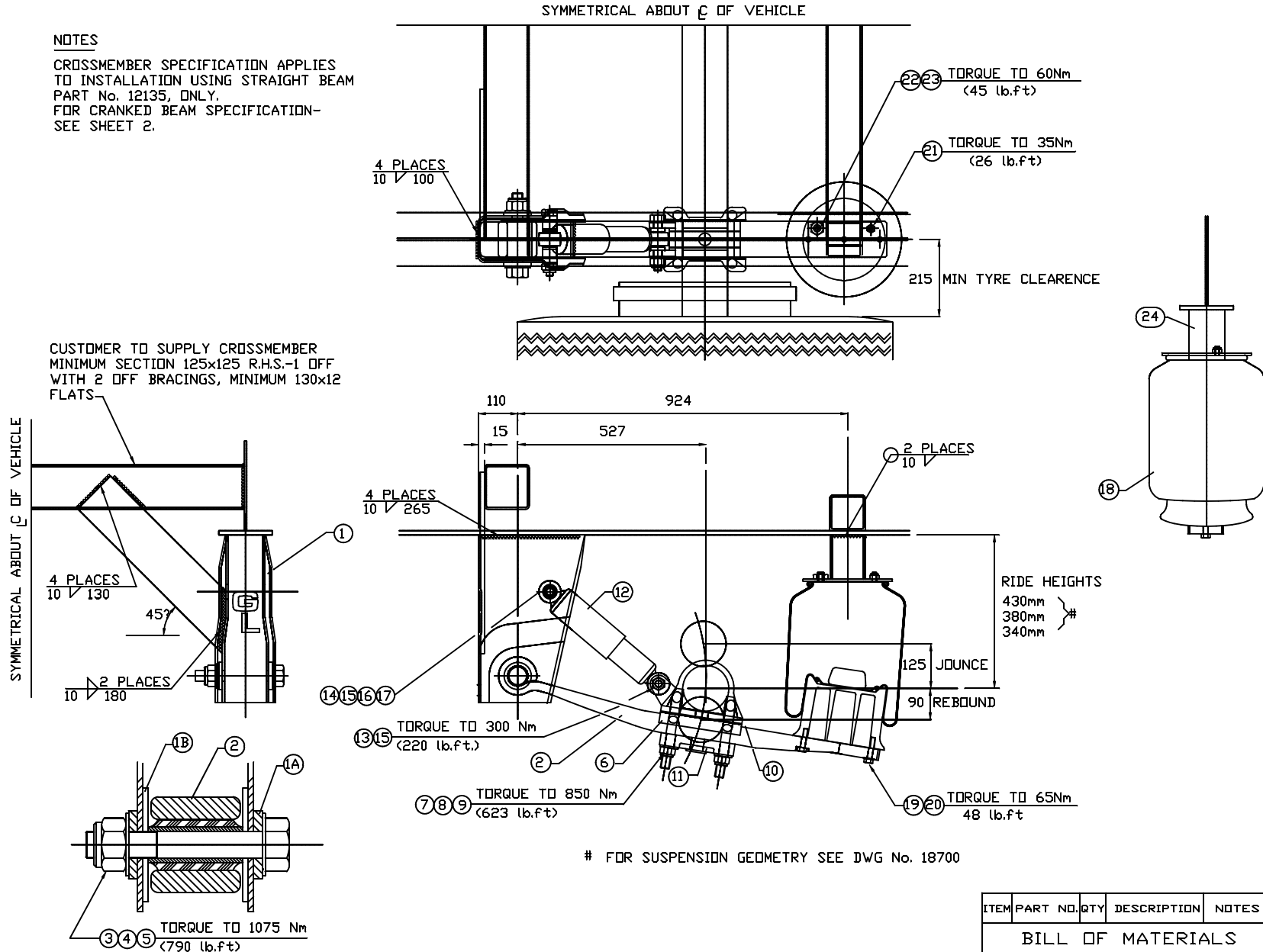
UNSPECIFIED TOLERANCES
NO DECIMALS ± 1mm
ONE ± 0.5mm
TWO ± 0.2mm
ANGULAR ± 0° - 3'

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

DISPOSITION	DATE	BY
ISSUED FOR MANUFACTURE	22/04/94	R.CONDON
CHANGE & REASON		
MODIFICATIONS		
GRANNING LYNX		
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MATERIAL		
SEE BILL OF MATERIALS		
FINISH		
TITLE		
INSTALLATION		
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.



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

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MATERIAL

SEE BILL OF MATERIALS

FINISH

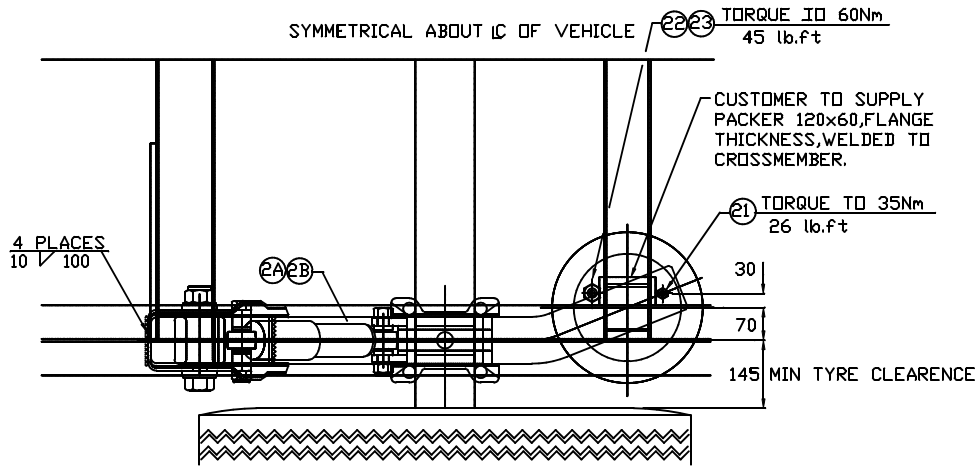
GREY PRIMER

TITLE

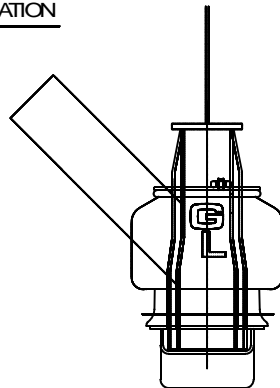
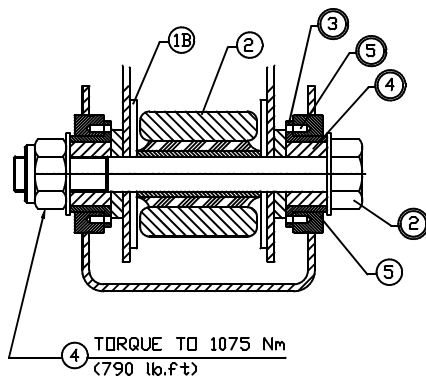
INSTALLATION
PTS (C) SUSPENSION RANGE
DRAWING NO. 18131
SHEET 1 OF 2

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY		F G REID		
DATE		21 FEB 1995		
AUTHORISED		CHECKED		
SCALE		1:5		
ESTIMATED WEIGHT		SUPERSEDES		
ACTUAL WEIGHT				

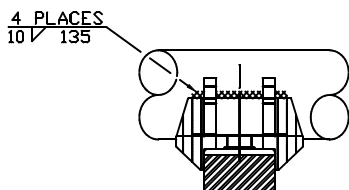
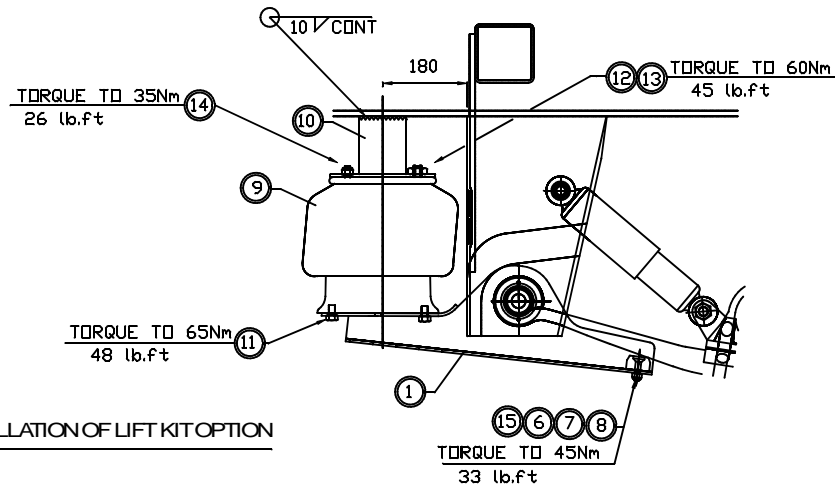
DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE	
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION	UNSPECIFIED TOLERANCES NO DECIMALS	ALL ALTERATIONS TO BE VIA CAD
ORIGINAL FRAME SIZE 809mm x 562mm	BATCH DATE	± 1mm	WEIGHT
	SUPPLIER CODE	ONE ± 0.5mm	ESTIMATED ACTUAL
	BURRS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



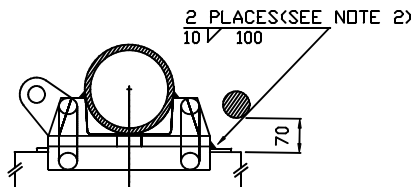
OPTIONAL CRANKED BEAM INSTALLATION



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

C	U BOLTS AND SADDLE REVISED	-	ENGJF	10 DEC 2013
B	DWG REVISED	-	ENGJF	20 JUL 2012
A	1ST ISSUE	-	ENGJF	21 FEB 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

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MATERIAL

SEE BILL OF MATERIALS

FINISH

GREY PRIMER

TITLE

INSTALLATION

PTS (C) SUSPENSION RANGE

DRAWING NO. 18131

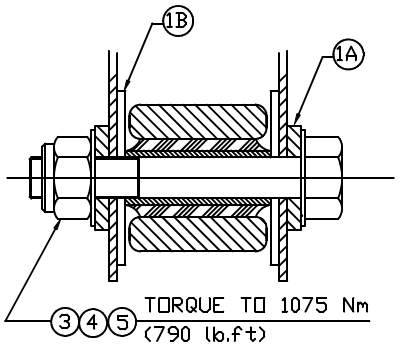
SHEET 2 OF 2 | A1

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
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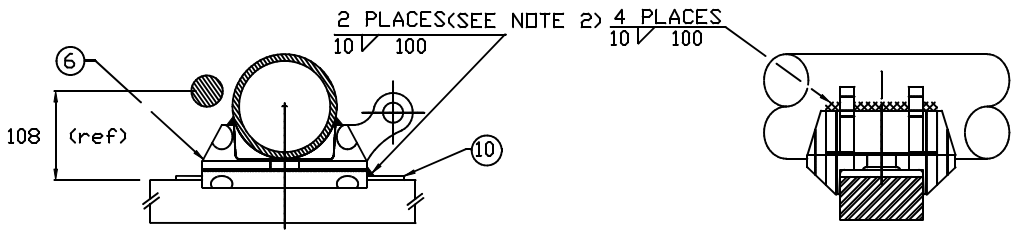
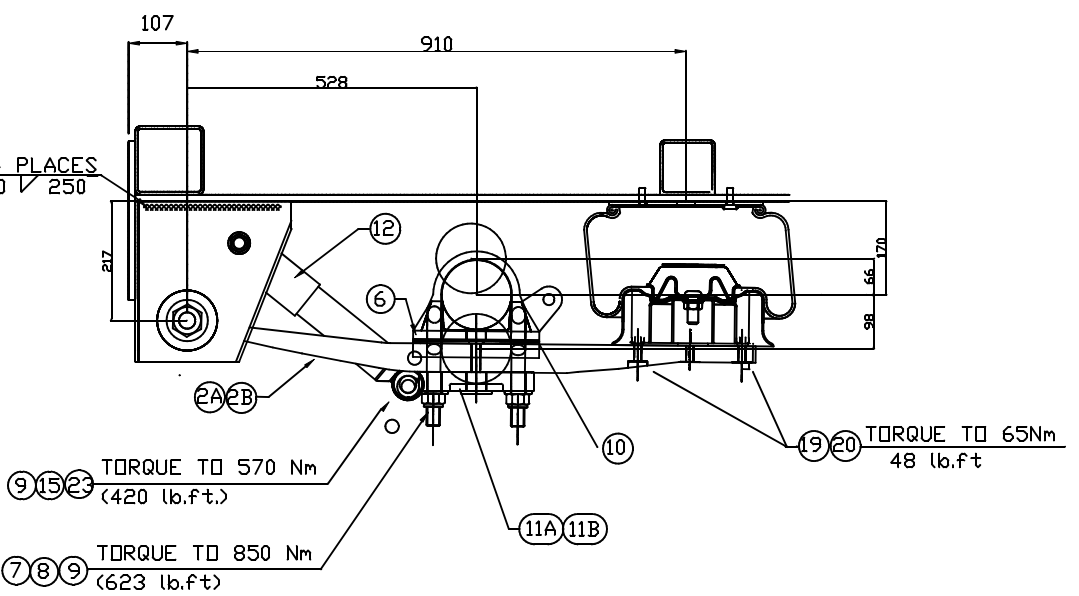
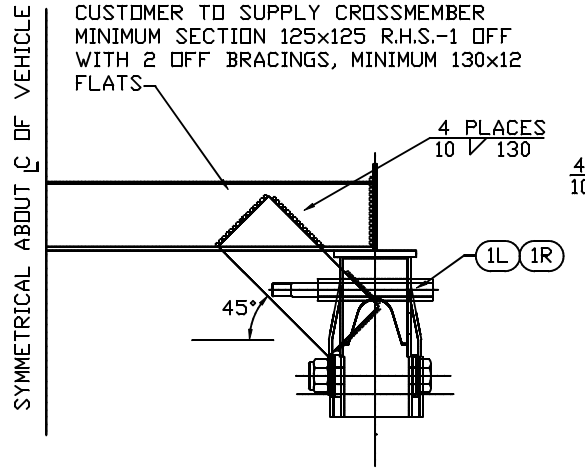
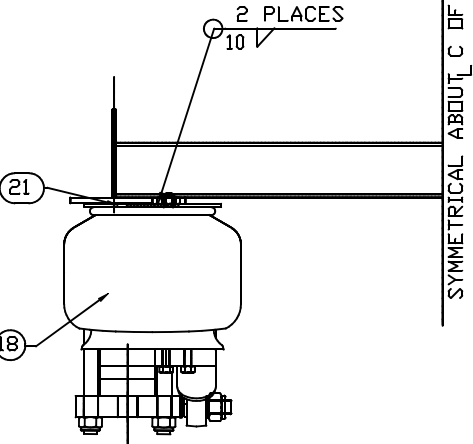
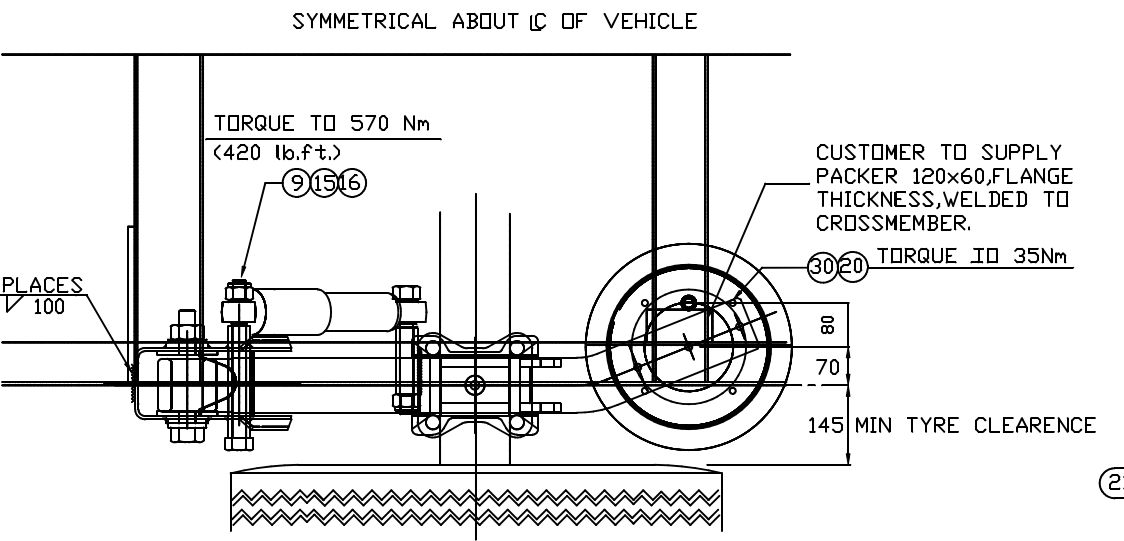
BILL OF MATERIALS

DRAWN BY	F G REID	AUTHORISED
DATE	21 FEB 1995	CHECKED
SCALE	1:5	SUPERSEDES
ESTIMATED WEIGHT	ACTUAL	

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
ORIGINAL FRAME SIZE 809mm x 562mm	BATCH DATE	ONE	± 0.5mm
	SUPPLIER CODE	TWO	± 0.2mm
	BURRS AND SHARP EDGES TO BE REMOVED	ANGULAR	± 0° - 3'



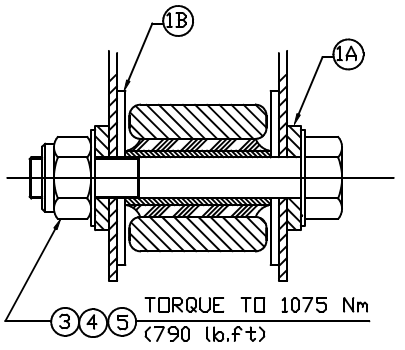
SECTION THROUGH PIVOT EYEBUSH



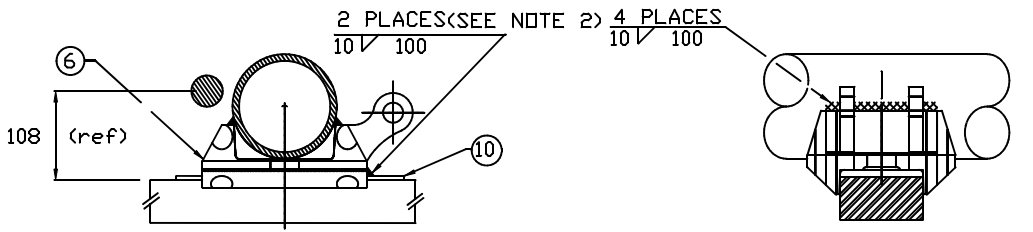
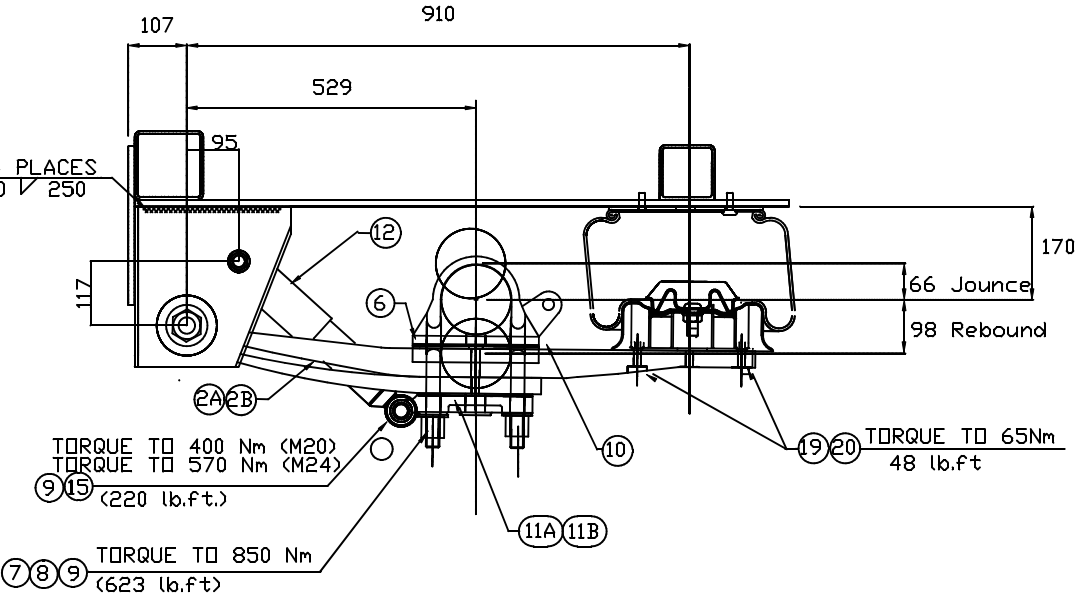
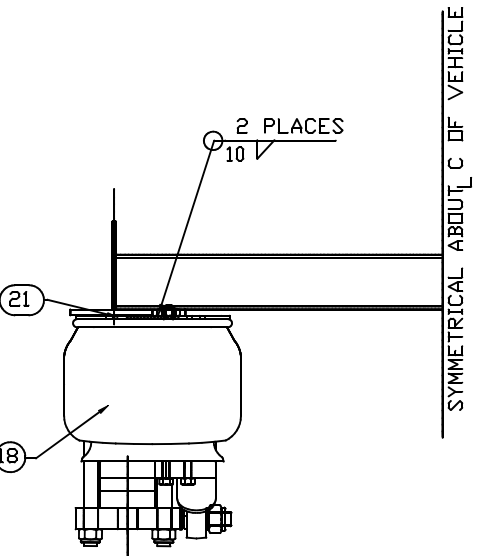
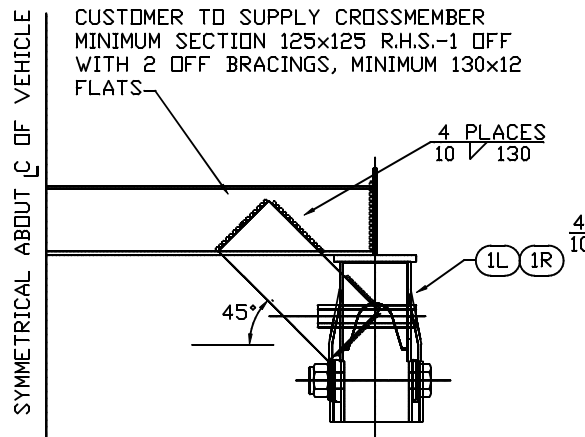
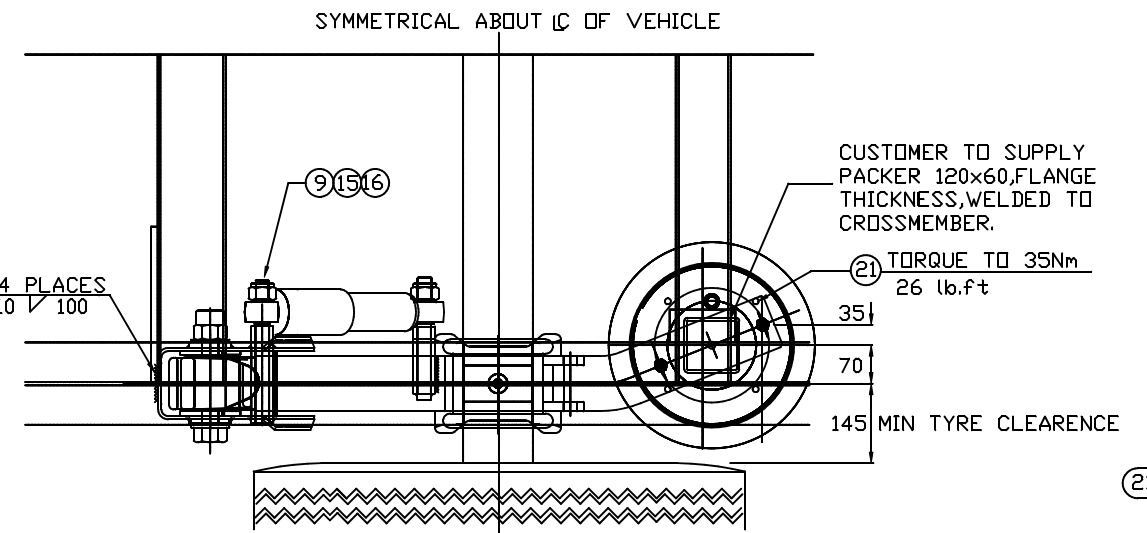
SADDLEWELDMENT

A First Issue - 10/10/2010	
CHG	REASON (DISP/DRG/REV)/DATE
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	
DRAWN BY: Pslator		AUTHORISED: -	
DATE: 22 Jan 10		CHECKED: -	
ALL DIMENSIONS ARE IN MILLIMETRES		SCALE	
COMPONENTS TO CARRY PART NO. AT LOCATION		TO BE VIA CAD	
BATCH DATE		WEIGHT	
SUPPLIER CODE		ESTIMATED ACTUAL	
BURRS AND SHARP EDGES TO BE REMOVED		SUPERSEDES	
UNSPECIFIED TOLERANCES		SCALE	
NO DECIMALS ± 1mm		SCALE	
ONE ± 0.5mm		SCALE	
TWO ± 0.2mm		SCALE	
ANGULAR ± 0° - 3'		SCALE	



SECTION THROUGH PIVOT EYEBUSH



SADDLEWELDMENT

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	UNSPECIFIED TOLERANCES	ALL ALTERATIONS TO BE VIA CAD
ORIGINAL FRAME SIZE 809mm x 562mm	BATCH - 33-A-TIE SUPPLIER - SEE BURRS AND SHARP EDGES TO BE REMOVED	NO DECIMALS ± 1mm ONE ± 0.5mm TWO ± 0.2mm ANGULAR ± 0° - 3'	WEIGHT ESTIMATED ACTUAL

ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY slator		AUTHORISED -		
DATE mar 11		CHECKED -		

B	ONLY WHEN THIS PWD	- ENGS	2/11
A	FIRST ISS.	- ENGS	
SUFF	CHANGE & REASON	DISP	ORIG
MODIFICATIONS			
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MATERIAL SEE BILL OF MATERIALS			
FINISH			
TITLE INSTALLATION PTL SUSPENSION RANGE			
DRAWING NO. 18302			
SHEET 1 OF 1 A1			

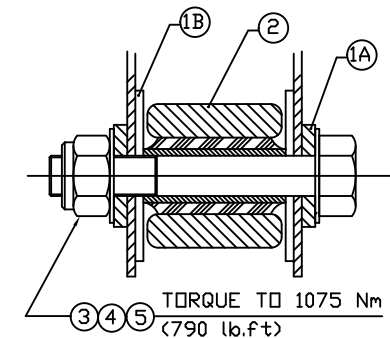
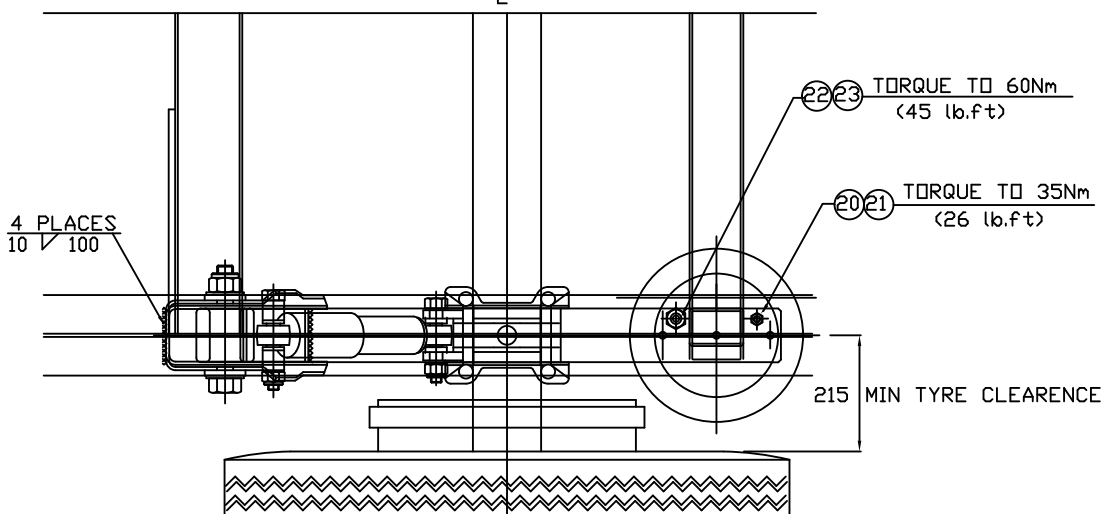
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THIRD ANGLE PROJECTION

NOTES

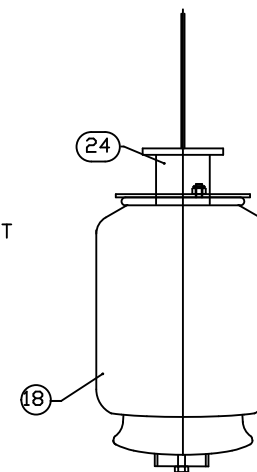
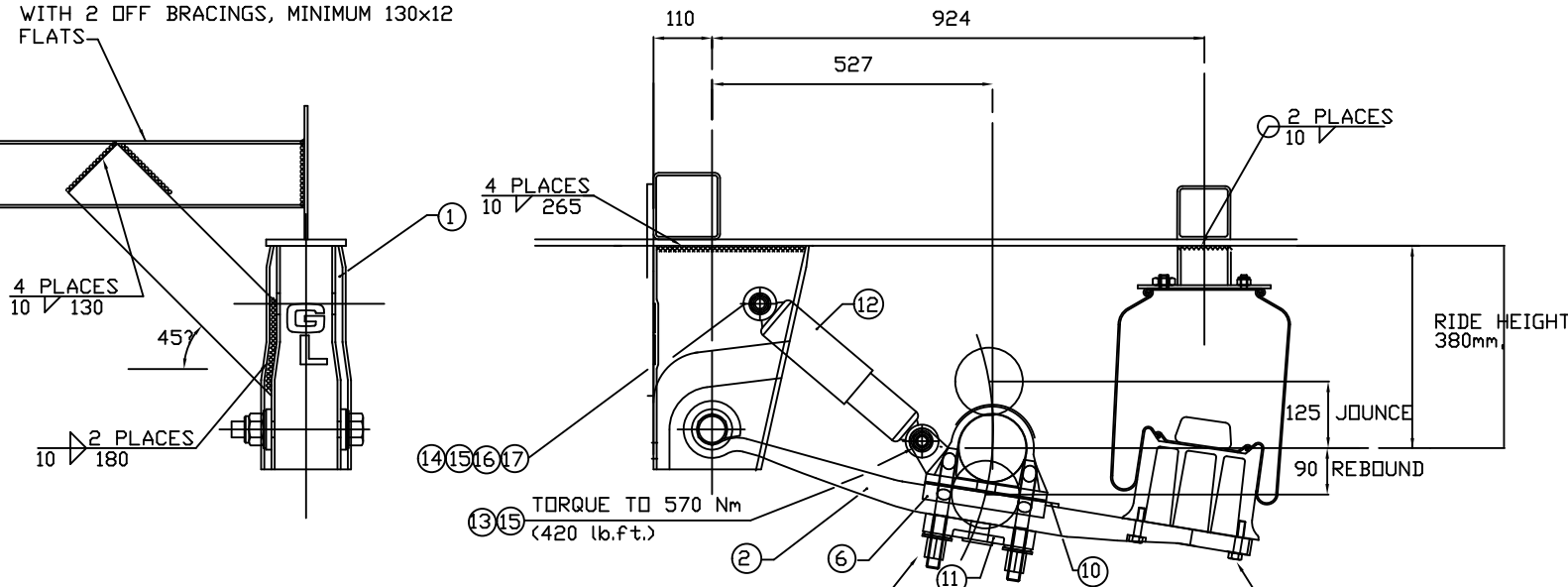
CROSSMEMBER SPECIFICATION APPLIES TO INSTALLATION USING STRAIGHT BEAM PART No. 12135, ONLY. FOR CRANKED BEAM SPECIFICATION-SEE SHEET 2.

SYMMETRICAL ABOUT C OF VEHICLE

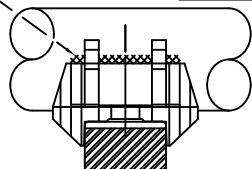


CUSTOMER TO SUPPLY CROSSMEMBER MINIMUM SECTION 125x125 R.H.S.-1 OFF WITH 2 OFF BRACINGS, MINIMUM 130x12 FLATS

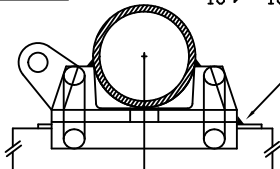
SYMMETRICAL ABOUT C OF VEHICLE



4 PLACES 10/135 **SADDLE WELDMENT**



7, 8, 9 TORQUE TO 850 Nm (623 lb.ft) 2 PLACES (SEE NOTE 2) 10/100



19, 20 TORQUE TO 65Nm 48 lb.ft

DATE SHIPMENT REVIEWED TO DATE	10/07/92	JF
1ST ISSUE	10/01/95	PS
SUFF CHANGE & REASON	DISP	BY DATE
MODIFICATIONS		
GRANNING LYNX		
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MATERIAL		
SEE BILL OF MATERIALS		
FINISH		
TITLE		
PTS 38-85A		
DRAWING NO. 18320		
SHEET 1 OF 3		

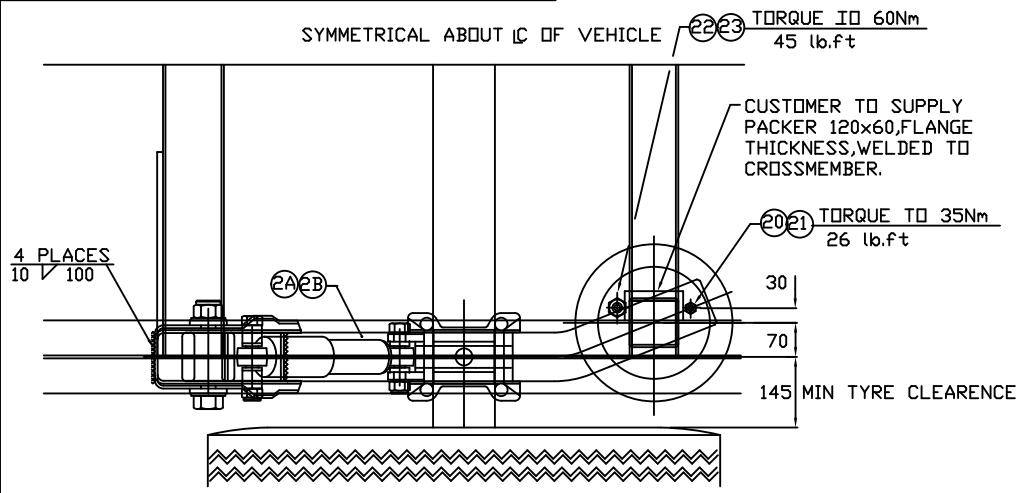
DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE	
ALL DIMENSIONS ARE IN MILLIMETRES	COMPONENTS TO CARRY PART NO. AT LOCATION	UNSPECIFIED TOLERANCES	ALL ALTERATIONS TO BE VIA CAD
ORIGINAL FRAME SIZE 809mm x 562mm	BATCH DATE	NO DECIMALS ± 1mm	SCALE
	SUPPLIER CODE	DONE ± 0.5mm	TO BE VIA CAD
	BURRS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

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

Important Note : This drawing is for information purposes, and may be subject to change. Any deviation must be requested, and approved in writing. The specification and installation of this equipment is solely the responsibility of the installer. This equipment is intended for normal road use, its correct operation and maintenance is the responsibility of the operator, recommendations and further information available at www.granninglynx.com DCN10/482

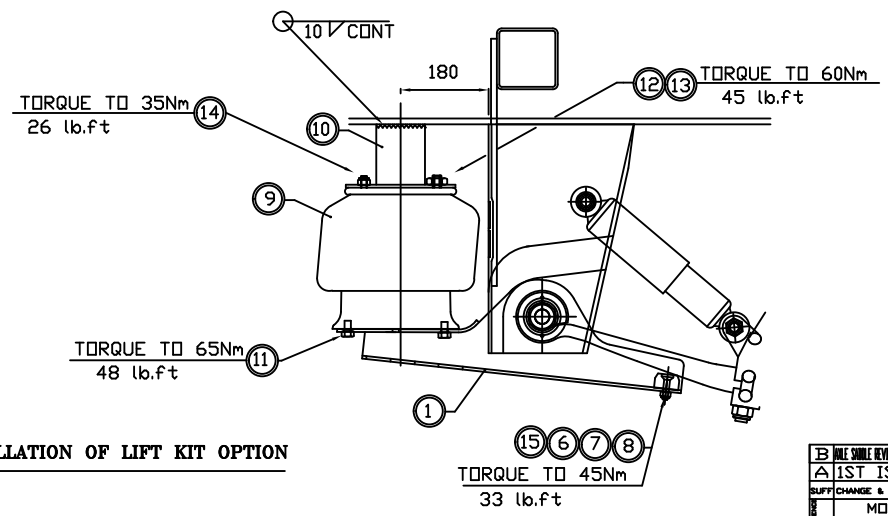
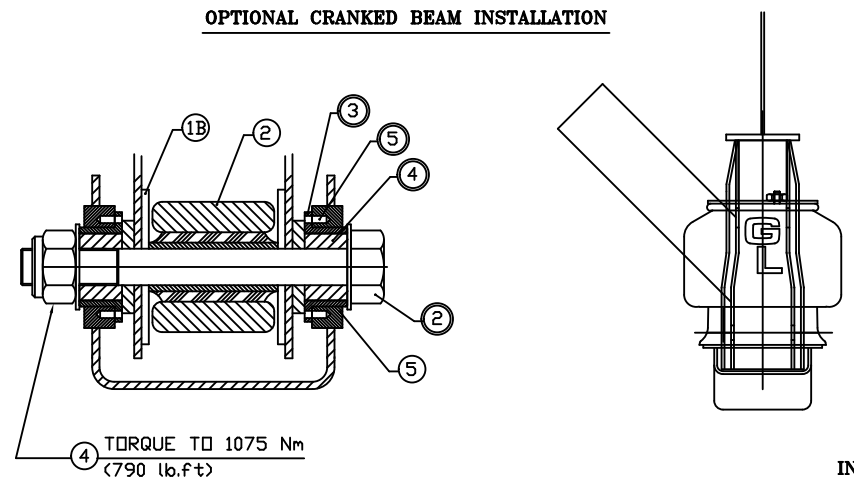
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THIRD ANGLE PROJECTION

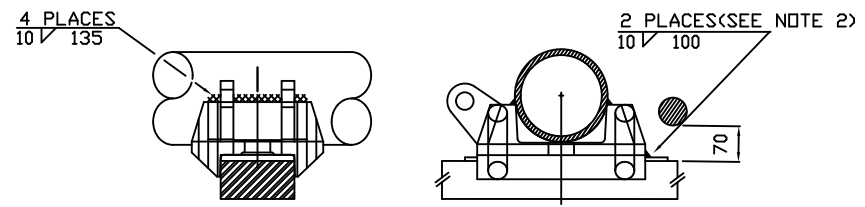


- NOTE 1**
AXLE TUBE SHOULD BE PRE-HEATED IF AMBIENT TEMPERATURE IS LESS THAN 68°F, 20°C.
- NOTE 2**
WELD AFTER TRACKING AXLE. PROTECT SPRING BEAM FROM ARCING AND SPLATTER.
- NOTE 3**
FOR ITEMS MARKED SEE B.O.M. L602PTS*
FOR ITEMS MARKED SEE B.O.M. PTS*
- NOTE 4**
ALL BOLTS TO BE TORQUED WITH SUSPENSION IN THE RIDE HEIGHT POSITION

OPTIONAL CRANKED BEAM INSTALLATION



INSTALLATION OF LIFT KIT OPTION



SADDLE WELDMENT

B	FILE SHIPLE REVISION TO ENDS - 10/07/2011
A	1ST ISSUE - 10/07/2011
1	SUFF CHANGE & REASON DIS/DATE
MODIFICATIONS	
GRANNING LYNX	
Granning UK Ltd. Unit 22, Amber Court, Huddersfield Garage, Huddersfield, Yorkshire, West Yorkshire, England.	
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MATERIAL	
SEE BILL OF MATERIALS	
FINISH	
TITLE	
INSTALLATION	
PTS 38-85A and 105A	
DRAWING NO. 18320	
SHEET 2 OF 2 A1	

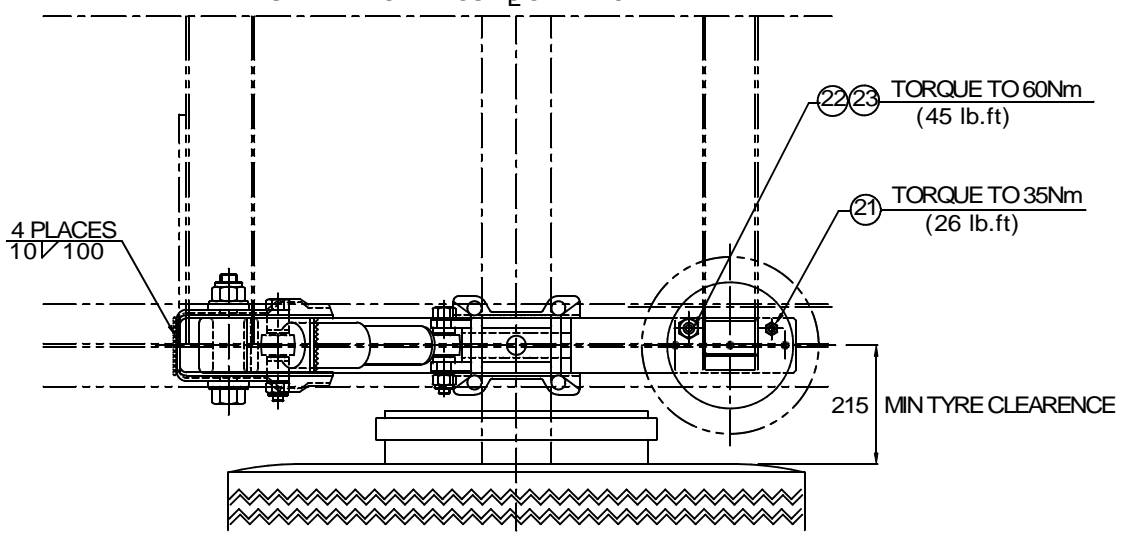
DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE		ITEM PART NO. QTY DESCRIPTION NOTES	BILL OF MATERIALS
ALL DIMENSIONS ARE IN MILLIMETRES		COMPONENTS TO CARRY AT LOCATION		DRAWN BY P.SLATOR	AUTHORISED
UNSPECIFIED TOLERANCES		NONE		DATE 8DEC 11	CHECKED
NO DECIMALS ± 1mm		ONE ± 0.5mm		SCALE	SUPERSEDES
TWO ± 0.2mm		ANGULAR ± 0° - 3'		ESTIMATED ACTUAL	
ORIGINAL FRAME SIZE 809mm x 562mm		BURRS AND SHARP EDGES TO BE REMOVED			

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THIRD ANGLE PROJECTION

SYMMETRICAL ABOUT C OF VEHICLE

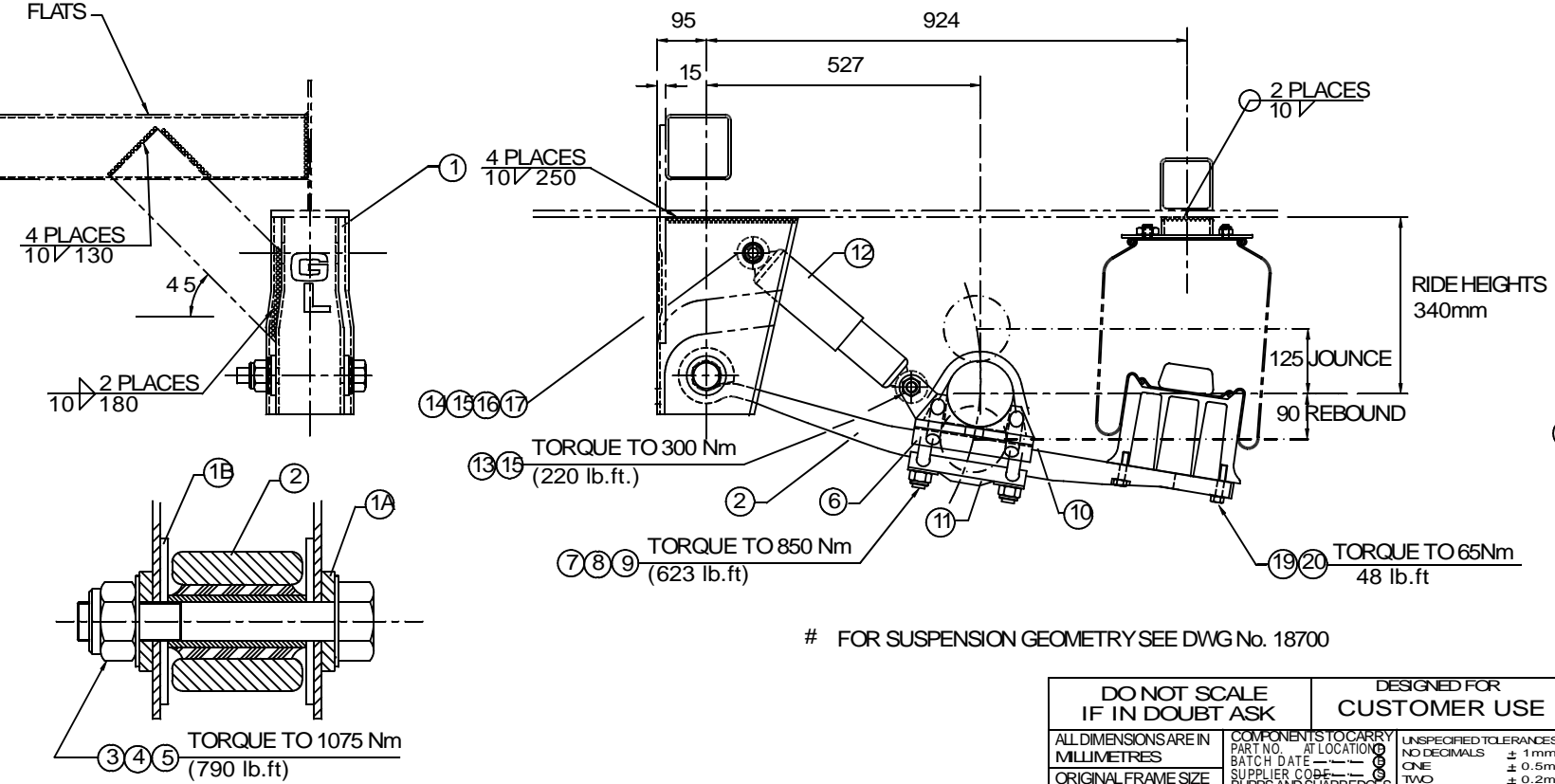
NOTES
 CROSSMEMBER SPECIFICATION APPLIES TO INSTALLATION USING STRAIGHT BEAM PART No. 12135, ONLY.
 FOR CRANKED BEAM SPECIFICATION- SEE SHEET 2.



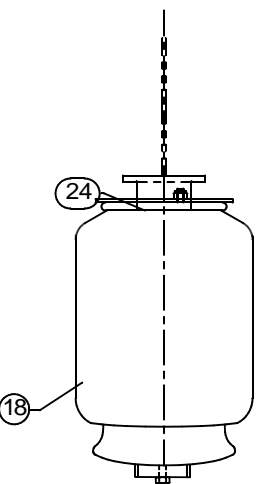
RIDE HEIGHT RANGE: 280-365MM

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

SYMMETRICAL ABOUT C OF VEHICLE



FOR SUSPENSION GEOMETRY SEE DWG No. 18700



REV	DATE	DESCRIPTION	BY	CHKD
A	1ST ISSUE	ENGR	JF	PLB
MODIFICATIONS GRANNING LYNX Granning UK Ltd. Unit 37, Millford Court, Harbuck Green, Warrington, Cheshire, WA1 4RZ, England. GRANNING LYNX DISCLAIMS PROPRIETARY RIGHTS TO ALL THE INFORMATION DISCLOSED ON THIS DRAWING. IT IS NOT TO BE REPRODUCED OR USED FOR MANUFACTURE FOR ANY OTHER PURPOSE OR DISCLOSED TO ANY THIRD PARTY WITHOUT GRANNING LYNX PERMISSION.				

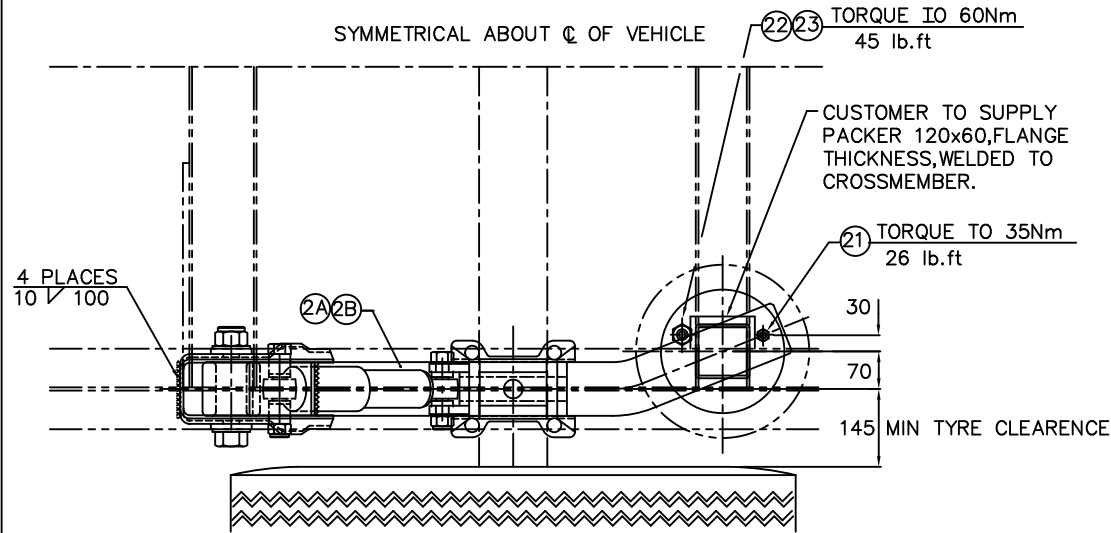
ITEM	PART NO.	QTY	DESCRIPTION	NOTES
BILL OF MATERIALS				
DRAWN BY RCONDON			AUTHORISED PLB	
DATE 22 APR 94			CHECKED MPQ	
ESTIMATED WEIGHT			SCALE 1:5	
ACTUAL WEIGHT			SUPERSEDES	

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 NO DECIMALS	ALL ALTERATIONS TO BE VIA CAD
ORIGINAL FRAME SIZE 809mm x 562mm	BATCH DATE 08	ONE ± 1mm	WEIGHT
	SUPPLIER CODE 08	TWO ± 0.5mm	ESTIMATED ACTUAL
	BURRS AND SHARP EDGES TO BE REMOVED	ANGULAR ± 0.2mm	
		± 0° - 3'	

MATERIAL	SEE BILL OF MATERIALS
FINISH	
TITLE	INSTALLATION PTS SUSPENSION RANGE
DRAWING NO.	18118
SHEET	1 OF 2

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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

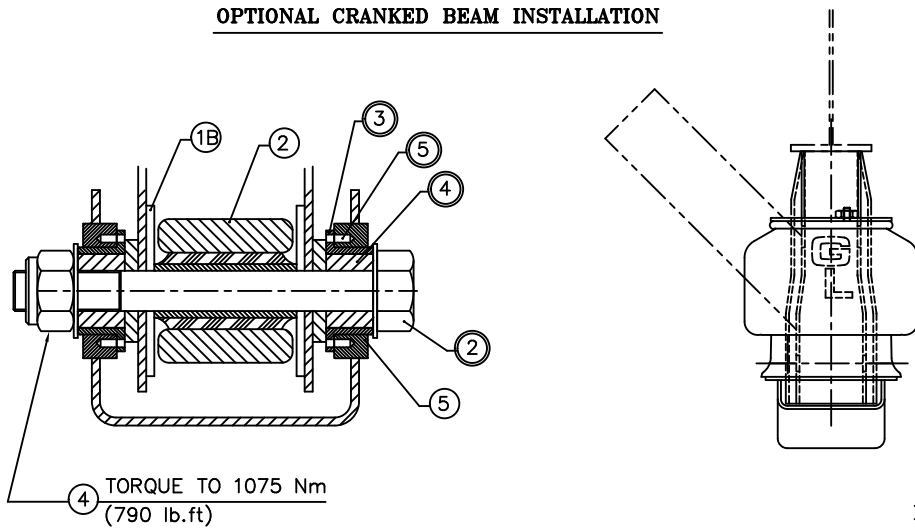
FOR ITEMS MARKED \odot SEE B.O.M. L602PTS*

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

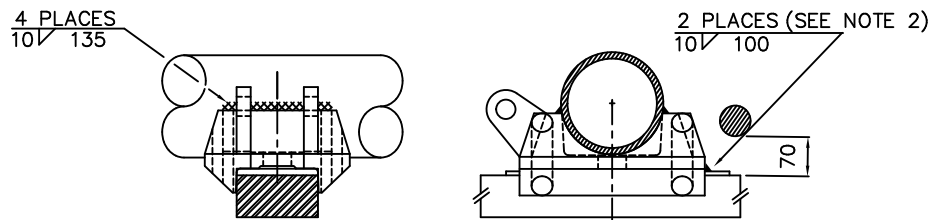
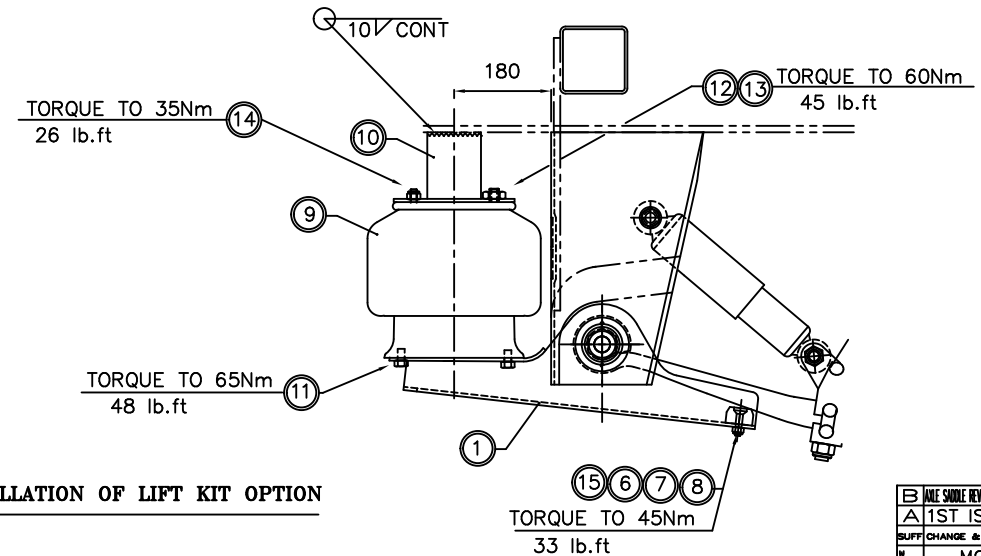
NOTE 4

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'

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

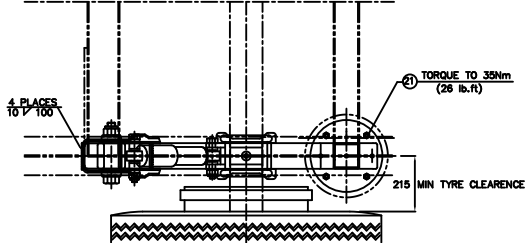
DATE SHOWN REVISED TO THIS	DATE	BY
1ST ISSUE	ENGR	1994
DISPOSITION		
MODIFICATIONS		
GRANNING LYNX		
Granning UK Ltd. Huddersfield Orange, Warrington, Cheshire, WA1 4RZ, England.		
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MATERIAL		
SEE BILL OF MATERIALS		
FINISH		
TITLE		
INSTALLATION		
PTS SUSPENSION RANGE		
DRAWING NO. 18118		
SHEET 2 OF 2 (A1)		

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SYMMETRICAL ABOUT Q OF VEHICLE

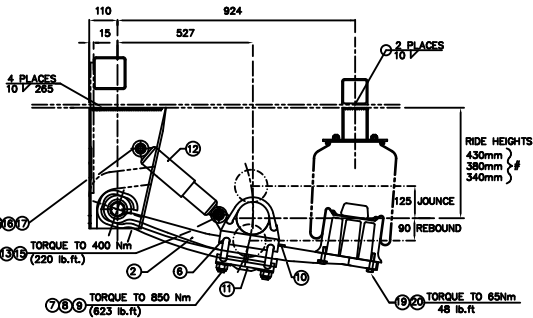
NOTES

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 Q OF VEHICLE

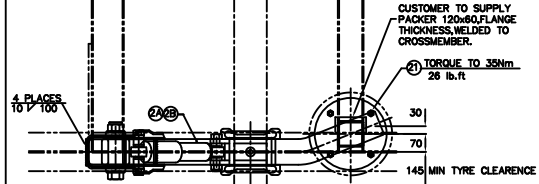


FOR SUSPENSION GEOMETRY SEE DWG No. 18700

DO NOT SCALE IF IN DOUBT ASK		DESIGNED FOR CUSTOMER USE		DATE: 18 APR 82	DESIGNED BY: F E B	APPROVED BY: [Signature]
ALL DIMENSIONS ARE IN MILLIMETRES		DIMENSIONS IN PARENTHESES ARE IN INCHES		SCALE: 1:1.5	INSTALLATION PITS (C) IS SUSPENSION	
ORIGINAL FRAME SIZE 800mm x 840mm		REVISIONS		DRAWING NO. 18132	SHEET 2 OF 2	

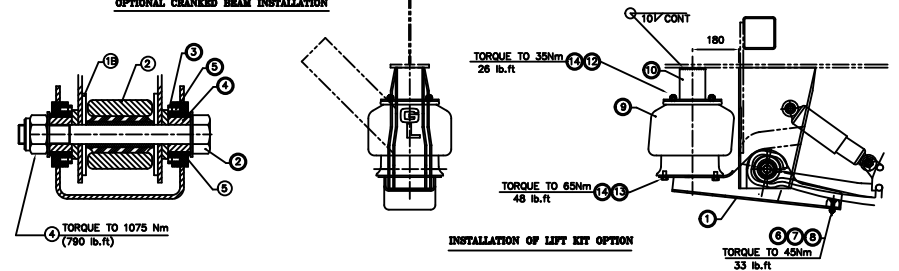
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SYMMETRICAL ABOUT Q OF VEHICLE



- 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 \odot SEE B.O.M. L602PTS(C)YSL*
FOR ITEMS MARKED \circ SEE B.O.M. PTS(C)YSL*
- 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		DATE: 18 APR 82	DESIGNED BY: F E B	APPROVED BY: [Signature]
ALL DIMENSIONS ARE IN MILLIMETRES		DIMENSIONS IN PARENTHESES ARE IN INCHES		SCALE: 1:1.5	INSTALLATION PITS (C) IS SUSPENSION	
ORIGINAL FRAME SIZE 800mm x 840mm		REVISIONS		DRAWING NO. 18132	SHEET 2 OF 2	