

PIL #21-002

# AXLE MODEL DESIGNATIONS, RATINGS AND REQUIRED FEATURES FOR ANZ

Date: **20 September 2021**Subject: **Axle Model Designations, Ratings & Required Features for Australia | New Zealand**Models: **All Tandem & Single Rear Drive Axles**

## Product Information Letter #21-002

Based on customer feedback, field experience and new product releases, Meritor axle application approval and ratings guidelines are periodically reviewed, and where necessary, updated.

This Product Information Letter supersedes all previous ratings guidelines, Product Information Letters and replaces the previous Product Information Letters PIL #11-001 and PIL #16-005, to include the new MT 21-165G, MT-23-168GP & P600 Series of rear drive axles.

Product Information Letters have been published in the past to act as guidelines to the application approval process and do not, themselves, constitute actual approval.

As before, any axle model, duty cycle or vocation not covered by PIL #21-002 requires an Application Approval form to be submitted.

### The following information summarizes the contents of the attachments to this PIL:

- Generally speaking the “G” suffix on the new series of axle models will denote a product required for use in Australia and New Zealand. This requirement remains the same
- The “P” suffix on the axle model denotes a tandem axle, which features an oil-pump in the forward rear axle differential carrier
- Page 3 - 5 of this PIL list specific features of the axle products

### Linehaul Applications

The attached ratings guidelines are released to cover on-highway, linehaul applications at road legal axle ground loads. For the purposes of these ratings guidelines, major unsealed highways are on-highway and on-highway is considered to be a maximum of 13% grade. Any vocation outside of these guidelines, are subject to separate application approval review. Specifically, application approvals are required to be submitted for;

- Any vocation that exceeds the maximum specified gradient
- Any vocation that is operating for more than 10% of its time or distance on the typical or greater gradients

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Depending on the details of the Application Approval and analysis, warranty limitations and specific servicing and/or maintenance requirements may apply (refer to warranty section).

## Vocational and Heavy Haul Applications

For mining and logging applications, in addition to the standard application approval form to be submitted, a detailed route profile will be required.

All tri-drive and P600 axle applications are subject to application review.

## Single Wide Base Tyres

It should be noted that the use of single wide-base tyres mounted on outset wheels is not covered by these guidelines. Please refer to PIL 515 for application guidelines on single wide-base tyres.

## Oil Temperature Control

One of two oil temperature control methods may be employed for all RT-XX-160P, MT-21-165GP & MT-23-168GP forward tandem axles.

The installation of an axle kit by the selling dealer, which has been developed and is now available from Meritor Sunshine, under Part No. LSG-392.

The installation of an OE supplied axle lube cooler that is remote mounted and suitably protected from possible damage due to road debris.

Oil cooler installation is not mandatory. It is recommended, subject to application. Meritor Australia recommends oil cooler installation for vehicles carrying high GCW and operating long-distance on-highway, or where axle input speeds exceed 2,500 rpm.

For RT-52-185 & RT-52-380 forward tandem axle, an OE supplied remote mounted axle lube oil cooler is recommended for all applications using engines with torque ratings in excess of 1870 lb-ft or where the axle lube temperatures exceed our guidelines, as shown in Maintenance Manual No. 1.

## Warranty

It should be noted that Meritor's warranty is subject to vehicles being operated within the specific axle application approval limitations and only when covered by an approved Application Approval form. Application Approvals are valid for a period of 5 years.

This may include, but may not be limited to, mandating specific oil type and periodic oil sampling to monitor for an early indication of, for example, premature bearing wear.

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Warranty coverage would be subject to proof of these specific servicing and/or maintenance requirements. Complete or catastrophic failure of the carrier may not be covered by warranty if the earlier oil sampling has indicated a potential issue.

Meritor Australia - Drive Axle Product Features									
Axle Model	GAWR Pounds (Tonnes)	Wall Thickness inch (mm)	Bowl Cover Thickness inch (mm)	Axle shaft body dia inch (mm)	Long axle shaft spline	Carrier Lube Pump	Main Diff Lock (DCDL) Customer Options		Features / Notes
							FWD	REAR	
RS-23-161	23,000 (11.0)	1/2 (12.7)	0.39 (10)	2.25 (57.2)	Double	NA	NA	1. Standard 2. DCDL	
RS-25-160	25,000 (11.5)	5/8 (16)	0.39 (10)	2.25 (57.2)	Double	NA	NA	1. Standard 2. DCDL	
RC-23-160	23,000 (11.0)	1/2 (12.7)	0.39 (10)	2.25 (57.2)	Double	NA	NA	1. Standard 2. DCDL	
MT-18-14XG	40,000 (18.1)	7/16 (11)	5/16 (8)	2.00 (50.8)	Double	NA	1. Standard	1. Standard	1. Tapered dowel mounting (4 places only) on fwd carrier. 2. Standard option is hypoid tandem.
MT-18-14XGP	40,000 (18.1)	7/16 (11)	5/16 (8)	2.00 (50.8)	Double	Std-Fwd	1. Standard 2. DCDL	1. Standard 2. DCDL	1. Tapered dowel mounting (4 places only) on fwd carrier. 2. Standard option is hypoid tandem.
MT-20-14XG	44,000 (20)	1/2 (12.7)	3/8 (9.5)	2.00 (50.8)	Double	NA	1. Standard	1. Standard	1. Tapered dowel mounting (4 places only) on fwd carrier. 2. Standard option is hypoid tandem.
MT-20-14XGP	44,000 (20)	1/2 (12.7)	3/8 (9.5)	2.00 (50.8)	Double	Std-Fwd	1. Standard 2. DCDL	1. Standard 2. DCDL	1. Tapered dowel mounting (4 places only) on fwd carrier. 2. Standard option is hypoid tandem.

- MT-18-14X & MT-20-14X are Australian released versions of the globally available MT-40-14X & MT-44-14X axles
- The axle nomenclature for the locally released MT-14X axles includes GAWR (Gross Axle Weight Rating) in metric tonnes. For example, MT-20-14X is rated to 20 metric tonnes (44,000lbs) GAWR
- For maintenance procedures on MT-14X axles, refer to MM-0970. For Amboid rear / rear carrier refer to MM-0990. For Hypoid rear / rear carrier refer to MM5A
- Additional product information is available from the literature on demand section at [www.meritor.com](http://www.meritor.com).

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Meritor Australia - Drive Axle Product Features									
Axle Model	GAWR Pounds (Tonnes)	Wall Thickness inch (mm)	Bowl Cover Thickness inch (mm)	Axle shaft body dia inch (mm)	Long axle shaft spline	Carrier Lube Pump	Main Diff Lock (DCDL) Customer Options		Features / Notes
							FWD	REAR	
RT-46-160GP	46,000 (20.9)	1/2 (12.7)	0.39 (10)	2.25 (57.2)	Double	Std - Fwd	1. Standard 2. DCDL	1. Standard 2. DCDL	1. Tapered dowel mounting (6 places on fwd carrier and 4 places on rear carrier) 2. Oil bypass kit on fwd carrier 3. All stud mounting for fwd carrier-housing"
MT-21-165G Linehaul	46,000 (20.9)	1/2 (12.7)	0.39 (10)	2.25 (57.2)	Double	NA	1. Standard	1. Standard 2. DCDL	Standard: 1. Tapered dowel mounting (6 places on fwd carrier and 4 places on rear carrier) 2. All stud mounting for fwd carrier-housing 3. Pumpless fwd carrier"
MT-21-165GP Vocational	46,000 (20.9)	1/2 (12.7)	0.39 (10)	2.25 (57.2)	Double	Std - Fwd	1. Standard 2. DCDL	1. Standard 2. DCDL	Standard: 1. Tapered dowel mounting (6 places on fwd carrier and 4 places on rear carrier) 2. All stud mounting for fwd & rear carrier-housing 3. Includes P900 class pinion bearings in the fwd carrier and tight fit crown wheel - diff case bolts in both fwd and rear carrier.
RT-50-160GP	50,000 (22.7)	5/8 (16)	0.39 (10)	2.25 (57.2)	Double	Std - Fwd	1. Standard 2. DCDL	1. Standard 2. DCDL	1. Tapered dowel mounting (6 places on fwd carrier and 4 places on rear carrier) 2. Oil bypass kit on fwd carrier 3. All stud mounting for fwd & rear carrier-housing"
MT-23-168GP Heavy Duty Vocational"	50,000 (22.7)	5/8 (16)	0.39 (10)	2.25 (57.2)	Double	Std - Fwd	1. Standard 2. DCDL	1. Standard 2. DCDL	Standard: 1. Tapered dowel mounting (6 places on fwd carrier and 4 places on rear carrier) 2. All stud mounting for fwd & rear carrier-housing 3. Includes P900 class pinion bearings in the fwd carrier and tight fit crown wheel - diff case bolts in both fwd and rear carrier.
RT-52-185G	52,000 (23.6)	9/16 (14.3)	3/8 (9.5)	2.25 (57.2)	Single - Fwd Double - Rear	Std - Fwd	1. Standard 2. No-Spin	1. Standard 2. DCDL 3. No-Spin	1. Reinforcement plates on top of the bowl (under suspension bracket) and internally
RT-52-380G	52,000 (23.6)"	9/16 (14.3)	3/8 (9.5)	2.25 (57.2)	Single	Std - Fwd & Rear	1. Standard 2. No-Spin	1. Standard 2. No-Spin	1. Reinforcement plates on top of the bowl (under suspension bracket) and internally
P610-38	83,600 (38)	5/8 (16)	0.39 (10)	1.77 (45.3)	Double	NA	1. DCDL	1. DCDL	1. Five Planet wheel end reduction 2. Only available to suit 335mm PCD wheels

- MT-21-165G (Linehaul) is based on the RT-46-160G axle model and is optimized for on-highway type linehaul applications.
- MT-21-165GP (Vocational) & MT-23-168GP (Heavy Duty Vocational) are based on the RT-46-160GP & RT-50-160GP axle models to suit vocational applications, but include an enhanced pinion bearing package (P900 class) in the forward rear carrier to further improve reliability on applications that are operating on severe duty cycles or vocations outside of the typical on-highway operation
- For maintenance procedures, refer to MM5L & MM5A
- For P610 series axles, refer to MM11118, MM0194 & MM01105 for maintenance procedures

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## MERITOR AXLES AND SUSPENSIONS – NOMINAL ON-HIGHWAY GCW RATINGS [TONNES] FOR AUSTRALIA AND NEW ZEALAND

Axle Model Identification		Engine Limit <sup>1</sup>	Ground Rating Tonnes	Highway Operation Gradients 8% Typical 13% Maximum	B Doubles (& Triples) Operation Gradients 5% Typical 8% Maximum	Road Train <sup>2/3</sup> Operation Gradients 3% Typical 5% Maximum
Australia	North America					
RQ4670	RQ4670	LAZY AXLE (N/A)	10	N/A	N/A	N/A
MR-09-004	N/A	LAZY AXLE (N/A)	10	N/A	N/A	N/A
MR-11-005	N/A	LAZY AXLE (N/A)	11	N/A	N/A	N/A
RS-23-161G (MS-11-165)	RS-23-161G	1850 FT-LBS	11	36	SEE NOTE 6	SEE NOTE 6
RS-26-186G (MS-12-186)	RS-26-186G	1850 FT-LBS	11.8	50	SEE NOTE 6	SEE NOTE 6
MT-18-14XG <sup>4</sup>	MT-40-14XG	1650 FT-LBS	18.1	50	SEE NOTE 6	SEE NOTE 6
MT-18-14XGP <sup>4</sup>	MT-40-14XGP	1650 FT-LBS	18.1	50	SEE NOTE 6	SEE NOTE 6
MT-20-14XG <sup>4</sup>	MT-44-14XG	1650 FT-LBS	20	50	SEE NOTE 6	SEE NOTE 6
MT-20-14XGP <sup>4</sup>	MT-44-14XGP	1650 FT-LBS	20	50	SEE NOTE 6	SEE NOTE 6
MT-21-165G <sup>5</sup>	RT-46-160G	2050 FT-LBS	20.9	50*	90*	N.R
MT-21-165GP	RT-46-160GP	2050 FT-LBS	20.9	80	90	110
MT-23-168GP	RT-50-160GP	2050 FT-LBS	22.7	90	100	131
RT-46-160GP	RT-46-160GP	2050 FT-LBS	20.9	80	90	110
RT-50-160GP	RT-50-160GP	2050 FT-LBS	22.7	90	100	131
RT-52-185G	RT-52-185G	2050 FT-LBS	23.6	100	110	140
RT-52-380G	RT-52-380G	2050 FT-LBS	23.6	120	120	155
P610-38	P610	2050 FT-LBS	38	SEE NOTE 6	SEE NOTE 6	200

### SPECIAL NOTES

1. NOMINAL ON-HIGHWAY RATING. FOR HIGHER ENGINE TORQUES, REFER TO MERITOR ENGINEERING FOR POSSIBLE APPROVAL
2. FOR LOW LOADER APPLICATIONS USE ROAD TRAIN GCM AT B DOUBLE GRADIENTS
3. THE GCW RATINGS APPLY AT LEGAL GROUND LOADS (UP TO 18.1 TONNE) NOT AT GROUND RATING
4. ON MT-14X AXLE MODELS 1850 LB-FT (2508 NM) ENGINE MAY BE APPROVED WITH STRAIGHT TORQUE ENGINES. REFER TO MERITOR ENGINEERING FOR APPROVAL
5. MT-21-165G (LINEHAUL) IS RESTRICTED TO OPERATION ON CLASS A ROADS ONLY NEEDS APPLICATION REVIEW FOR OPERATION ON CLASS B ROADS OR HIGHER GCM
6. REFER TO MERITOR ENGINEERING FOR POSSIBLE APPROVAL

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