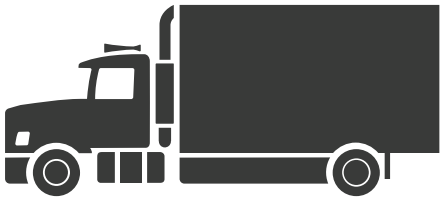
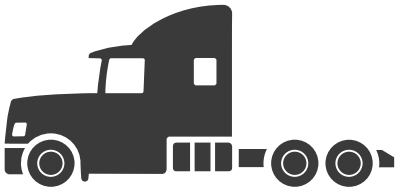
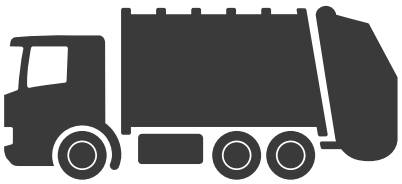
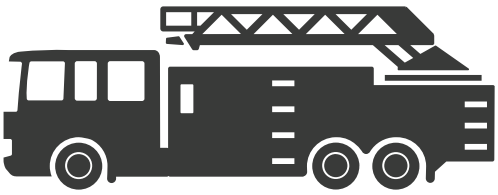
AXLE APPLICATION GUIDELINES









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SECTION 1 — NOTES AND FORMULAS

Use of These Guidelines

Note: Section I applies to all vocations in this publication.

This document describes the approvable gross axle weight rating (GAWR), Axle Input Torque, Gross Engine Torque and gross vehicle weight (GVW) and/or gross combination weight (GCW) for Meritor Brand Axles used in the U.S., Canada and Mexico. This document is not intended to be used for any other purposes nor in any other territories.

Conditions for Approval

Axles can be approved for use in the vocations covered by this document when the axles meet all of the requirements for:

A. Structure

B. Maximum Torque

   1. Axle Input Torque

   2. Gross Engine Torque

C. GAWR, GVW, or GCW

D. Notes (starting on Page 2)

Note: Axle applications for other tire sizes, tracks, mounting centers, front axle KPI's, Meritor axle models, engine/transmission torques beyond those listed, or GVW/GCW other than shown within this AXLE GUIDELINE may still be approvable.

For any questions concerning this document (interpretation and calculations) or for loadings, configurations or duty cycles outside the parameters of this guideline, contact the Meritor OnTrac™ Customer Service Center at 866-OnTrac1 (668-7221).

Warranty

Meritor branded axles included in the Guidelines that are operated within the vocational limitations set forth herein are covered by Meritor's industry competitive warranty. For complete details (and specific coverage), refer to Meritor's Warranty Guideline (Publication SP-95155).

Contact Meritor on questions concerning warranty coverage and application approvals for product used outside of these published Guidelines.

Increases in grades and/or number of stops/starts, as well as jobsite/terminal/dock/transfer site conditions, have a notable influence on the service life of the driving axles

Changes to Guidelines

These Guidelines are subject to change at any time, without prior notice, at the discretion of Meritor. Please contact the Meritor OnTrac™ Customer Service Center at 866-OnTrac1 (668-7221) to confirm you have the most recent Guideline available.

1 Notes and Formulas

Notes

1. Approval of the following optional features is also described in this document. All options may not be available on all axle models.
   A. Driver-Controlled Differential Lock (DCDL)
   B. Oil Pump
2. For review and approval of Brakes, Drivelines, Suspensions, Focal mounted Telma Retarders for single axles only (not approved with tandems), Trailer Axles, Transfer Cases, Wheel Ends, and other components, contact the Meritor OnTrac™ Customer Service Center at 866-OnTrac1 (668-7221).
3. Attachment to the axle housing assembly and durability of the axle housing as a result of the suspension loadings is the responsibility of the original equipment manufacturer (OEM). Meritor will be responsible for bracket integrity and attachment only if:
   A. The brackets are Meritor design;
   B. Meritor welds the bracket to the housing; and
   C. Meritor has established a prior agreement with the OEM.
4. When specifying a higher rated suspension than the accompanying axle or tandem, the maximum rating approved is that of the axle.
5. Where a chassis is being sold as an incomplete vehicle, it is the responsibility of the OEM and/or the dealer to accurately convey all approved axle loading information to the Body Builder. Also, it is the responsibility of the final vehicle builder to ensure the assigned tagged values for GAWR and GVW/GCW do not exceed those limits approvable by this Guideline (this includes auxiliary axles and FMVSS brake standards).
6. Correct clamp load on the suspension bracket attached to the drive axle housing(s) must be maintained to prevent cracking and maintain housing integrity. See TMC RP643 maintenance guidelines to make sure fasteners are tight.
7. The OEM has the responsibility to determine steering axle specifics (maximum turn angle, tie rod arm ball position, steering arm ball location, geometry limits, etc.)
8. Vehicles operating outside of an approved Meritor application, such as a different vocation, drivetrain configuration, load distribution changes, and testing of any kind, are not covered by the warranty. For complete details (and specific coverage), refer to Meritor's Warranty Guideline (Publication SP-95155).
9. The use of NoSPIN® "differentials" in any single or tandem rear drive axle results in the exclusion of the axle shafts from coverage by the warranty. Certain other carrier components will also be excluded from warranty coverage if they no longer operate correctly as a result of a NoSPIN® failure or malfunction. Depending on axle loading, the NoSPIN® can cause all differential torque to be directed to one axle shaft causing overload (and potential failure). NoSPIN® is a registered trademark and product of Eaton Corporation.
10. Any use of Meritor components in vehicles equipped with an automatic transmission retarder must be submitted to Meritor for approval.
11. Any use of Meritor components in vehicles equipped with hybrid propulsion systems (hydraulic propulsion, HEV, BEV) or fully electric system must be submitted to Meritor for approval.
12. Use of Meritor rear axles and drivelines in vehicles with All Wheel Drive configuration must be submitted to Meritor for approval if high or low speed mismatch exceeds guidelines defined on Page 5.
13. All front drive steer axles and transfer case applications must be submitted to Meritor for approval.
14. All Meritor drive axle models must not operate in conditions when axle oil temperature exceeds 250˚F (121˚C).
15. Tandems and tridems with a minimum GAWR rating of 46,000 can be approved with dual vehicle retardation devices (VRD) in the U.S., Canada and Mexico.

16. Information contained in this publication is effective as of the date of publication noted herein, and is subject to change without notice. Meritor reserves the right to revise the information presented.
17. Incorrect use of reverse gear or gears resulting in a coast load failure, which is considered a shock load failure, is not warranted.
18. Unless otherwise noted, the maximum allowable wheel outset is 0.56 inches for all axles. Use of the outset wheels will increase the track of the housing over the standard track with dual tires. Refer to the Axle Structural Charts section of these Guidelines for additional information on the GAWR based on the track width.
19. The move to lower numerical axle ratios increases the possibility of torque spikes occurring in the drivetrain. The OEM is responsible for ensuring that powertrain controls are in place to prevent transient torque spikes from exceeding the input torque limits stated in the vocational tables.
20. Use of retarders is not approved on vehicles equipped with MS-13X axles, unless noted otherwise.
21. Job site ratings listed in this document pertain to Meritor axles only. The OEM should be aware that other components may have different job-site load ratings. It is the OEM's responsibility to ensure all products are safely operated within the guidelines specified by the respective product manufacturer.
22. All trailers are assumed to have brakes when reviewing tractors with trailers (semi or full) brake applications. If that is not the case, the OEM needs to note it on the application.
23. Refer to Product Information Letter (PIL) #11-001 and #16-005 regarding Meritor global axle options.
24. Refer to TP-12126 for application guidelines regarding Meritor Drivelines.
25. All Meritor drive axle models equipped with the optional pump feature specified in this document must be limited to input speeds of 2500 rpm maximum if operating above those speeds for intervals exceeding 45 minutes duration without a cool down period. Operation above these speeds for long durations can cause axle oil temperatures to exceed 250°F (121°C), the safe operating range for Meritor axles, potentially having adverse effects on axle product performance and life.
26. Refer to Page 6 for information on how to calculate input shaft speed.

1 Notes and Formulas

Input Torque for Rear Drive Axle – Formulas

Manual Transmissions

Calculated Input Torque to Axle = T x N1 (single VRD)

Where:	**T** = Maximum Gross Engine Torque (lb-ft or Nm) **(See Note 1)** **N1** = Lowest Transmisison Forward Gear Ratio **(See Note 2)**
Example:	MT-xx-14X rear axle with 4.33 axle ratio for Linehaul vocation For this chosen axle model and rear axle ratio, the Input Torque Rating = 22,100 lb-ft T = 1,650 lb-ft; N1 = 8.69
Calculation:	Input Torque to Axle: 1,650 lb-ft x 8.69 = 14,338.5 lb-ft
Therefore:	14,338.5 lb-ft ≤ 22,100 lb-ft ⇨ **Approved**

Traditional Analysis Method (Automatic Transmissions)

Calculated Input Torque to Axle = T x N1 x N2 (single VRD)

Where:	**T** = Maximum Gross Engine Torque (lb-ft or Nm) **(See Note 1)** **N1** = Lowest Transmisison Forward Gear Ratio **(See Note 2)** **N2** = Torque Converter Stall Ratio (2.5 or specific value if supplied)
Example:	3000 RDS transmission on/off highway use RS-160 rear axle with 6.14 axle ratio for Construction vocation For this chosen axle model and rear axle ratio, the Input Torque Rating = 10,200 ft-lb T = 1,650 lb-ft; N1 = 3.49; N2 = 2.5
Calculation:	Input Torque to Axle: 1,650 lb-ft x 3.49 x 2.5 = 14,396.3 lb-ft
Therefore:	14,396.3 lb-ft > 10,200 lb-ft ⇨ **Not Approved** **Note:** Calculated Input Torque needs to be less than Input Torque rating

Maximum Turbine Torque Analysis Method (Allison Automatic Transmissions Only)

Calculated Input Torque To Rear Drive Axle = MTT x N1

Where:	**MTT** = Maximum Turbine Torque* (lb-ft) *(*As published by Allison Transmission)* **N1** = Lowest Transmission Forward Mechanical Gear Ratio
Calculation:	Input Torque to Axle: 1,650 ft-lb x 3.49 = 5,758 ft-lb
Therefore:	5,758 ft-lb ≤ 10,200 ft-lb ⇨ **Approved**

There will be occasions where the Traditional Analysis Method will calculate a lesser rear axle input torque than the Maximum Turbine Torque Analysis Method. For those cases, Meritor will use the **lesser of the two analysis method calculation results** for the application approval process.

Notes:

1. Dual torque engines: use the lower gross engine torque value available in 1st gear to determine input torque.
2. Transmission with ratios that are designaated LL, L, Creep, Crawler or with a step of 50% or greater between ratios are not to be used in the above calculation. Use the next numerical gear ratio to determine input torque to axle.
3. Auxiliary transmission is not to be used as a torque multiplier. It is for positioning only.
4. For vehicles with Dual Vehicle Retardation Devices (VRD) [46,000 lb (20,865 kg) or greater GAWR]:
   A. Calculate the input torque as shown above.
   B. Then calculate the torque of the VRD by using 12:1 transmission ratio in the above formula.
   C. The calculated torques per (A) and (B) must not exceed the publiched values in this guideline.

Tire Mismatch Analysis

Tire mismatch is a measure of the speeds the front and rear tire rotate at relative to each other. Any number except zero indicates that sliding will occur between the tires and the road. This will result in increased tire wear. If a differential is present in the transfer case, the front and rear tires move independently without scrubbing; however, excessive mismatch may decrease the durability of the differential gears.

Low Speed Mismatch

The following formula is used to calculate mismatch at low speeds before tire expansion occurs. This assumes normal usage of a transfer case with one axle, usually the front, disengaged at higher operating speeds.

$$\% \textbf{ Mismatch}_{LO} = \frac{[(SLR_F)(AR_R) - (SLR_R)(AR_F)] \times 100}{(SLR_F)(AR_R)}$$

Where: $\textbf{SLR}_F$ = Static Loaded Radius of Tires (Inch) - Front
$\textbf{SLR}_R$ = Static Loaded Radius of Tires (Inch) - Rear
$\textbf{AR}_F$ = Axle Ratio - Front
$\textbf{AR}_R$ = Axle Ratio - Rear

High Speed Mismatch

The following formula is used to calculate mismatch at high speeds and is considered only when the front driving axle is engaged at high speeds. Normally the front driving axle is disengaged in this condition. This calculation, therefore, is only required for Transfer Cases which include a differential and operate the front driving axle on a full time basis.

$$\% \textbf{ Mismatch}_{HI} = \frac{[(TRPM_R)(AR_R) - (TRPM_F)(AR_F)] \times 100}{(TRPM_R)(AR_R)}$$

Where: $\textbf{TRPM}_F$ = Tire Revs Per Mile - Front
$\textbf{TRPM}_R$ = Tire Revs Per Mile - Rear
$\textbf{AR}_F$ = Axle Ratio - Front
$\textbf{AR}_R$ = Axle Ratio - Rear

Notes: Meritor requires the mismatch between front and rear driving axles not exceed ±2.0% for high speed mismatch and ±1.5% for low speed mismatch for disengageable transfer cases without a differential, and ±3.0% mismatch for units with a differential. If the Transfer Case has neither a clutch nor differential, mismatch must be under ±1% high or low speed.

(When mismatch calculations result in a positive value, the front axle is pulling. A negative value indicates that the rear axle is pushing. A positive mismatch is the preferred condition for vehicle safety and improved steering.)

Meritor will only approve a mismatch between 0 and +3% between the front and rear driving axles for snow plow vocations. Further, AWD engagement should not exceed more than 20% of mileage on an annual basis for any plowing vocations.

Job Site

A job site is defined as an area where a truck is loading, unloading, or switching trailers. This can include loading docks, terminals, and transfer sites for non-vocational trucks. Although the trucks may spend a minimal amount of their overall operational life on a job site, the conditions of the job site can be very impactful to the longevity of the axles and drivelines. Loose and unmaintained surfaces, especially on grades, can lead to spinout and shock load damage to drivetrain components in as few as a single event. For products not specifically designed for those conditions, repeated exposure can lead to premature fatigue of components. Therefore, it is very important to consider the job site conditions, in addition to the driving duty cycle a truck will operate, when determining which products will perform the best.

Job Site Surfaces Categories

Category A job sites/terminals/docks/transfer sites: Pavement, concrete, or maintained and hard-packed gravel.

Category B job sites/terminals/docks/transfer sites: Loose or unmaintained sand, dirt, or gravel, landfill, farm field, mud, or other similar surfaces.

1 Notes and Formulas

Generic Tire Information (Reference Only)

SLR (in.)	Revs per Mile	Tire Size
14.3	673	215/75RR17.5
14.3	676	8.00R17.5
14.7	656	8.50R17.5
15	639	225/70R19.5
15.3	627	9.00R17.5
15.6	615	10.00R17.5
15.7	617	245/70R19.5
15.8	609	265/70R19.5
16	608	8.00R19.5
16.2	597	8.00X19.5
17	567	255/70R22.5
17.1	563	8.00R22.5
17.2	558	235/80R22.5
17.3	558	245/75R22.5
17.8	541	255/80R22.5
18	540	9.00R22.5
18.1	538	265/75R22.5
18.4	533	9.00X22.5
18.7	513	275/80R22.5
18.7	515	445/50R22.5
18.8	513	295/75R22.5
18.9	513	10.00R22.5
19.2	494	16.50X19.5
19.2	495	18.00R19.5
19.2	508	10.00X22.5

SLR (in.)	Revs per Mile	Tire Size
19.3	500	275/80R24.5
19.3	501	295/80R22.5
19.5	491	445/65R19.5
19.5	491	455/55R22.5
19.5	497	11.00R22.5
19.5	498	285/75R24.5
19.6	491	385/65R22.5
19.6	491	315/80R22.5
19.8	494	11.00X22.5
19.8	476	18.00X22.5
19.9	489	305/75R24.5
20	483	12.00R22.5
20	491	15.00R22.5
20.1	478	15.00X22.5
20.1	484	12.00X22.5
20.3	471	16.50R22.5
20.3	478	12.50X22.5
20.5	474	11.00R24.5
20.5	468	425/65R22.5
20.7	472	11.00X24.5
20.9	458	445/65R22.5
21	458	18.00R22.5
21	457	16.50X22.5
21	463	12.00R24.5
21.6	441	18.00X22.5

It is the responsibility of the OEM to provide correct data.

Calculation for Vehicle Speed at 2500 rpm Input Shaft Speed

$$\mathbf{SP} = \frac{\text{IS X 60}}{\text{AR X M}}$$

Where:

IS = Input Shaft (rpm)

SP = Vehicle Cruising Speed

AR = Axle Ratio

M = Tire Revolutions/Mile

Axle Ratio	Max Vehicle Speed*
3.91	77 mph
4.10	73 mph
4.30	70 mph
4.33	69 mph
4.56	66 mph
4.63	65 mph
4.88	61 mph

Axle Ratio	Max Vehicle Speed*
4.89	61 mph
5.13	58 mph
5.29	57 mph
5.38	56 mph
5.57	55 mph
5.86	51 mph
6.14	49 mph

*Table assumes 500 tire rev/mile of typical 11R22.5 and an input speed limit of 2500 rpm.

RS/RT 145 Model Crossover to the MS/MT 14X Models

	Old	New	Wheel End
Single Axles	RS17145	MS1714X---L--	L Series
	RS17144	MS1714X---R--	R Series
	RS19145	MS1914X---L--	L Series
	RS19144	MS1914X---R--	R Series
	RC/RS21145	MC/MS2114X---R--	R Series
	RC/RS22145	MC/MS2214X---R--	R Series
	RC23145	MC2314X---R--	R Series
Tandem Axles	RT34145	MT3414X---R--	R Series
	RT40145	MT4014X---R--	R Series
	RT44145	MT4414X---R--	R Series
	RT40143	MT4014X---R--	R Series Amboid
	RT40144	MT4014X---R--	R Series Amboid

The above model abbreviated nomenclature is to be used for model identification in these guidelines only. For complete model designations, see Model Nomenclature charts beginning on Page 88 of this guideline.

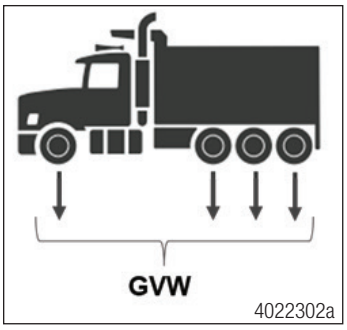
SECTION 2 — STRUCTURE CHARTS/ON-HIGHWAY

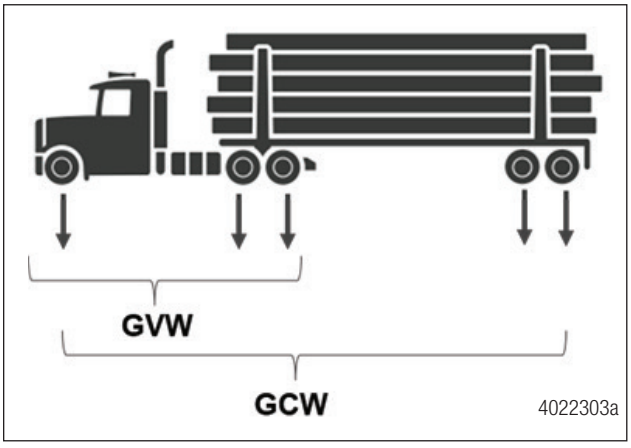
Definition of Structural Rating Factors and Their Influences

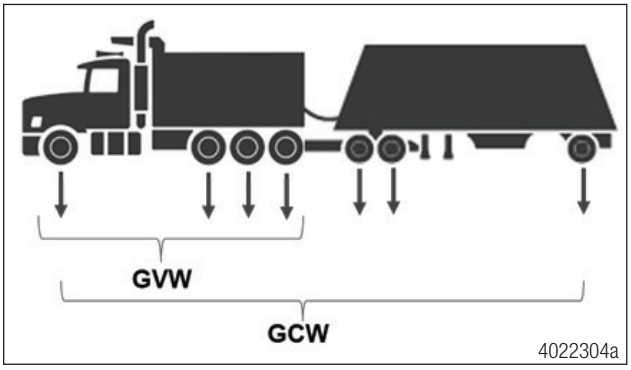
Gross Axle Weight (GAW) is the total weight on a specific axle position.

Gross Vehicle Weight (GVW) The total loaded weight of a single vehicle (no trailers included).

Gross Combination Weight (GCW) is the total loaded weight of a truck or tractor and its trailer(s) combined.





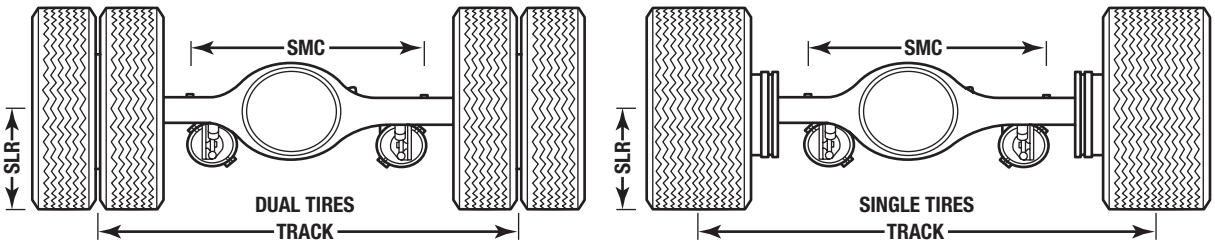


High G**V**W means higher rolling resistance to get the power unit started – higher loads on the driven wheels either compressing tire to a larger contact patch and/or tires sink deeper into surfaces such as sand, mud, dirt, etc.

High G**C**W means higher startability torque required to get the combination vehicle started from a stop, especially on an uphill grade.

Note: GCW limited applications also need to meet any GVW limitations.

Front Non-Drive Steer and Rear Drive Axle Structural Guides



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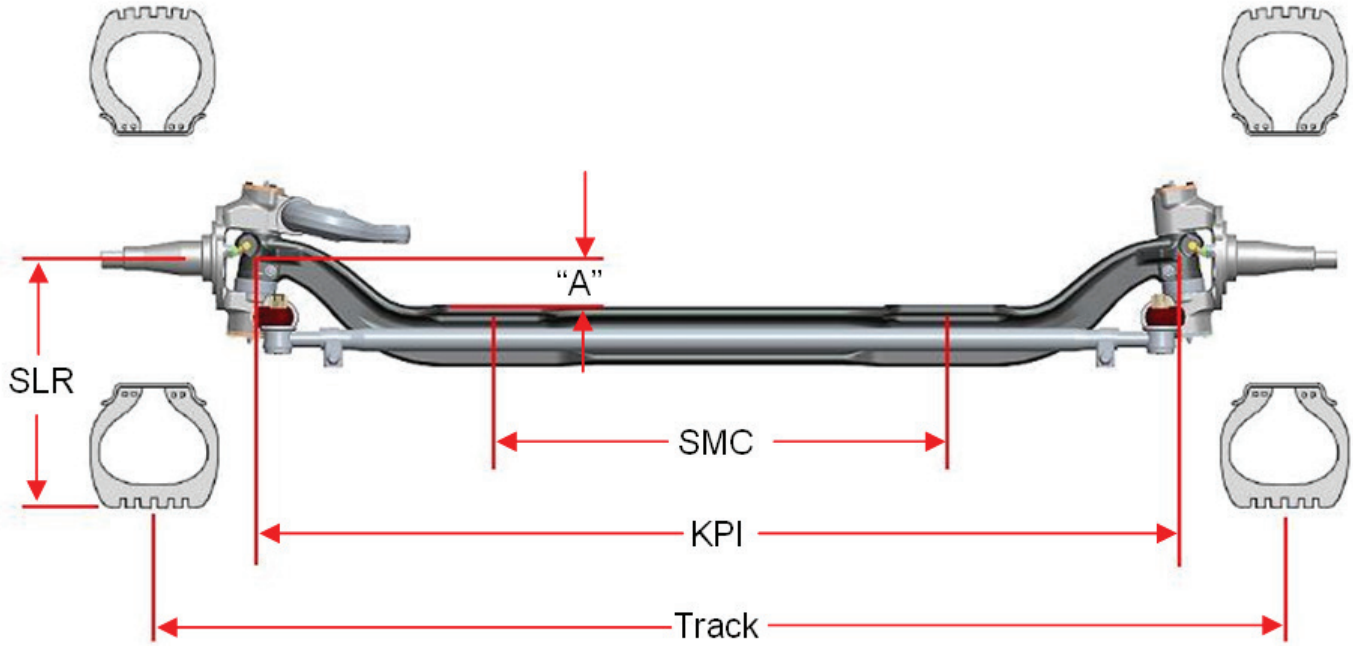


Beam Drop
"A" = Kingpin pivot to spring pad

The following items are used to determine the structural loading on the axle:

1. The maximum value of the Static Load Radius (SLR) of the tires
2. Suspension Mounting Centers (SMC)
3. The standard front axle King Pin Intersection (KPI) dimensions (Front Axles Only)
4. Axle Housing Wall Thickness (HWT) (Fabricated Axles Only)
5. Tire Track

2 Structure Charts/On-Highway

Job Site Maximum Axle Loading

Job site maximum axle loadings shown below are approved only for vehicles which conform to the listed parameters:

- Tandem Rear Drive Axles only
- Maximum operating speed of 5 MPH
- Minimum spring mount centers for drive axles (per chart below)
- Maximum tire SLR (per chart below).

Application requests must be submitted for job site ratings for front drive steer axles, single and tridem rear drive axles.

Operators using a vehicle equipped with auxiliary liftable axles (tag or pusher) must consider job site maximum axle loadings (formerly creep) when any auxiliary axle is unloaded.

Auxiliary liftable axle(s) should only be raised (or unloaded) to improve vehicle maneuverability in off-road use or when vehicle is unloaded.

Raising a liftable auxiliary axle causes a load transfer to the axles that remain in contact with the pavement. This load transfer can impact axle life. Meritor requires that vehicles using one or more liftable auxiliary axle comply with the terms of Meritor Product Information Letter No. 395.

Job site maximum axle loadings **cannot** be exceeded.

Job Site Maximum Axle Loading Chart

AXLE MODEL	JOB SITE AXLE RATINGS lb (kg) (1000)	MINIMUM SMC Inches (mm)	MAXIMUM SLR Inches (mm)
MT-40-14X and Plus	55 (25)	35.88 (911.4)	20.5 (503)
RT-40-160			
MT-44-14X			
RT-46-160	60 (27)		23.4 (594)
RT-46-164	65 (29)		
RT-50-160			
RT-52-185		35.50 (901.7)	
RT-52-380			
RT-58-185	70 (32)		
RT-58-380			

Job site ratings for FUELite ™, FUELite+™, MT-40-14E and DualTrac™ not permitted. Refer to Construction Vocation for Max GVWR ratings.

Note: Refer to Note 21 on Page 3.

Non-Drive Front Axle Job Site Maximum Axle Loading Chart

AXLE MODEL FAMILY	GAWR lb (kg)	Linehaul lb (kg)	Non-Linehaul lb (kg)	MAX SLR	MIN SMC	KPI	MAX Track
				Inches (mm)			
MFS 12	12,000 (5,443) and 12,500 (5,670)	15,600 (7,076)	18,000 (8,165)	20.6 (523)	32.5 (826)	69.0 (1,753)	83.5 (2,121)
						71.5 (1,816)	86.0 (2,184)
MFS+ 12	12,000 (5,443) and 12,500 (5,670)	15,600 (7,076)	18,000 (8,165)	20.6 (523)	32.5 (826)	69.0 (1,753)	83.5 (2,121)
						71.0 (1,803)	86.0 (2,184)
MFS 13	13,000 (5,896) and 13,200 (5,987)	17,160 (7,784)	19,800 (8,981)	20.6 (523)	32.5 (826)	69.0 (1,753)	83.5 (2,121)
						71.5 (1,816)	86.0 (2,184)
MFS+ 13	13,000 (5,896) and 13,200 (5,987)	17,160 (7,784)	19,800 (8,981)	20.6 (523)	32.5 (826)	69.0 (1,753)	83.5 (2,121)
						71.0 (1,803)	86.0 (2,184)
MFS 14	14,000 (6,351) and 14,700 (6,668)	19,110 (8,668)	22,050 (10,002)	20.6 (523)	32.5 (826)	69.0 (1,753)	83.5 (2,121)
						71.5 (1,816)	86.0 (2,184)
MFS+ 14	14,000 (6,351) and 14,700 (6,668)	19,110 (8,668)	22,050 (10,002)	20.6 (523)	32.5 (826)	69.0 (1,753)	83.5 (2,121)
						71.0 (1,803)	86.0 (2,184)
						71.5 (1,816)	86.0 (2,184)
MFS 16	16,000 (7,257)	20,800 (9,435)	24,000 (10,886)	20.6 (523)	32.5 (826)	68.83 (1,748)	81.7 (2,076)
						69.0 (1,753)	83.5 (2,121)
						71.5 (1,816)	86.0 (2,184)
MFS 18	18,000 (8,164)	23,400 (10,614)	27,000 (12,247)	20.6 (523)	32.5 (826)	68.5 (1,740)	83.0 (2,108)
						68.83 (1,748)	81.7 (2,076)
						71.0 (1,803)	89.0 (2,061)
MFS 20	20,000 (9,071)	26,000 (11,793)	30,000 (13,608)	20.6 (523)	32.5 (826)	68.5 (1,740)	83.0 (2,108)
						68.83 (1,748)	81.7 (2,076)
						71.0 (1,803)	89.0 (2,061)

Note: Refer to Note 21 on Page 3.

Non-Drive Front Axle Structural Ratings

AXLE MODEL	GAWR lb (kg)	KPI Inch (mm)	AXLE BEAM DROP Inch (mm)	MINIMUM/ MAXIMUM MOUNTING CENTERS Inch (mm)	KNUCKLE	WHEEL* END	TRACK** Inch (mm)
MFS-08-113B-N	8,000 (3632)	68 (1727.2)	3.74 (95.0)	31.00/35.00 (787/889)	Integral Tie Rod	8K Meritor	78.05 (1,982)
MFS-08-153B-N		72 (1828.8)					82.05 (2,084)
MFS-08-163B-N		65.25 (1657.4)					75.03 (1,906)

2 Structure Charts/On-Highway

AXLE MODEL	GAWR lb (kg)	KPI Inch (mm)	AXLE BEAM DROP Inch (mm)	MINIMUM/ MAXIMUM MOUNTING CENTERS Inch (mm)	KNUCKLE	WHEEL* END	TRACK** Inch (mm)
MFS-10-122A-N	10,000 (4540)	69.0 (1752.6)	3.5 (88.9)	32.00/35.00 (813/889)	Conventional	FF	79.54 (2,020)
MFS-10-124A-N			5.00 (127.0)	31.00/36.00 (787/914			
MFS-10-143A-N		71.5 (1816.1)	3.74 (95.0)	32.00/35.00 (813/889)			82.00 (2,083)
MFS-10-144A-N			5.00 (127.0)	31.00/36.00 (787/914)			
MFS-12-122B-N	12,000 (5448)	69.0 (1752.6)	3.50 (88.9)	32.0/35.0 (812/889)	Integral Tie Rod	FF	79.54 (2,020)
MFS-12-122C-N					Integral Tie Rod and Torque Plate		
MFS-12-132B-N		71.0 (1803.4)			Integral Tie Rod		82.00 (2,083)
MFS-12-132C-N					Integral Tie Rod and Torque Plate		
MFS-12E-122B-N	12,500 (5806)	69.0 (1752.6)	3.50 (88.9)	32.0/35.0 (812/889)	Integral Tie Rod	FF	79.54 (2,020)
MFS-12E-122C-N					Integral Tie Rod and Torque Plate		
MFS-12E-132B-N		71.0 (1803.4)			Integral Tie Rod		82.00 (2,083)
MFS-12E-132C-N					Integral Tie Rod and Torque Plate		
MFS-13-122B-N	13,000 (5902)	69.0 (1752.6)	3.50 (88.9)	32.0/35.0 (812/889)	Integral Tie Rod	FF	79.54 (2,020)
MFS-13-122C-N					Integral Tie Rod and Torque Plate		
MFS-13-132B-N		71.0 (1803.4)			Integral Tie Rod		82.00 (2,083)
MFS-13-132C-N					Integral Tie Rod and Torque Plate		
MFS-13B-122B-N	13,200 (5993)	69.0 (1752.6)	3.50 (88.9)	32.0/35.0 (812/889)	Integral Tie Rod	FF	79.54 (2,020)
MFS-13B-122C-N					Integral Tie Rod and Torque Plate		
MFS-13B-132B-N		71.0 (1803.4)			Integral Tie Rod		82.00 (2,083)
MFS-13B-132C-N					Integral Tie Rod and Torque Plate		

AXLE MODEL	GAWR lb (kg)	KPI Inch (mm)	AXLE BEAM DROP Inch (mm)	MINIMUM/ MAXIMUM MOUNTING CENTERS Inch (mm)	KNUCKLE	WHEEL* END	TRACK** Inch (mm)
MFS-14-122A-N	14,700 (6674)	69.0 (1,752.6)	3.50 (88.9)	31.25/36.06 (794/916)	Conventional	FF	78.51 (1,994)
MFS-14-122B-N	14,000 (6350)				Integral Tie Rod Arm		
MFS-14-122C-N					Integral Tie Rod Arm and Torque Plate		
MFS-14-124A-N	14,700 (6674)		5.00 (127.0)		Conventional		
MFS-14-132B-N	14,000 (6350)	71.0 (1,803.4)	3.50 (88.9)	31.00/39.00 (787/991)	Integral Tie Rod Arm		82.00 (2,057)
MFS-14-132C-N					Integral Tie Rod Arm and Torque Plate		
MFS-14-142B-N		71.5 (1,816.1)			Integral Tie Rod Arm		
MFS-14-142C-N					Integral Tie Rod Arm and Torque Plate		
MFS-14-143A-N	14,700 (6674)		3.74 (95.0)		Conventional		
MFS-14-144A-N			5.00 (127.0)				
MFS-14F-122B-N	14,600 (6622)	69.0 (1,752.6)	3.50 (88.9)	31.25/36.06 (794/916)	Integral Tie Rod Arm	FF	78.51 (1,994)
MFS-14F-122C-N					Integral Tie Rod Arm and Torque Plate		
MFS-14F-132B-N		71.0 (1,803.4)		31.00/39.00 (787/991)	Integral Tie Rod Arm		82.00 (2,057)
MFS-14F-132C-N					Integral Tie Rod Arm and Torque Plate		
MFS-14F-142B-N		71.5 (1,816.1)			Integral Tie Rod Arm		
MFS-14F-142C-N					Integral Tie Rod Arm and Torque Plate		
MFS-14G-122B-N	14,700 (6674)	69.0 (1,752.6)	3.50 (88.9)	31.25/36.06 (794/916)	Integral Tie Rod Arm	FF	78.51 (1,994)
MFS-14G-122C-N					Integral Tie Rod Arm and Torque Plate		
MFS-14G-132B-N		71.0 (1,803.4)		31.00/39.00 (787/991)	Integral Tie Rod Arm		82.00 (2,057)
MFS-14G-132C-N					Integral Tie Rod Arm and Torque Plate		
MFS-14G-142B-N		71.5 (1,816.1)			Integral Tie Rod Arm		
MFS-14G-142C-N					Integral Tie Rod Arm and Torque Plate		

2 Structure Charts/On-Highway

AXLE MODEL	GAWR lb (kg)	KPI Inch (mm)	AXLE BEAM DROP Inch (mm)	MINIMUM/ MAXIMUM MOUNTING CENTERS Inch (mm)	KNUCKLE	WHEEL* END	TRACK** Inch (mm)
MFS-16-192A-N	16,000 (7264)	68.5 (1739.9)	3.50 (88.9)	28.80/37.30 (732/947)	Integral Tie Rod Arm	FF	81.74 (2,076)
MFS-16-194A-N		68.83 (1748.3)	5.00 (127.0)				
MFS-16-193A-N		68.2 (1732.2)	4.76 (120.9)				
MFS-16-133A-N		71.0 (1803.4)	3.74 (95.0)	30.00/34.00 (762/864)			84.25 (2,140)
MFS-16-135A-N		70.7 (1795.7)	5.00 (127.0)				
MFS-18-192A-N	18,000 (8172)	68.5 (1739.9)	3.50 (88.9)	28.80/37.30 (732/947)	Conventional	FL	81.74 (2,076)
MFS-18-194A-N		68.83 (1748.3)	5.00 (127.0)				
MFS-18-133A-N		71.0 (1803.4)	3.74 (95.0)	30.00/36.10 (762/864)			84.25 (2,140)
MFS-18-193A-N		68.2 (1732.2)	4.76 (120.9)	28.80/37.30 (732/947)			81.74 (2,076)
MFS-18-135A-N		70.7 (1795.7)	5.00 (127.0)	30.00/34.00 (762/864)			84.25 (2,140)
MFS-20-192A-N	20,000 (9080)	68.5 (1739.9)	3.50 (88.9)	28.80/37.30 (732/947)	Conventional	FL	81.74 (2,076)
MFS-20-194A-N		68.83 (1748.3)	5.00 (127.0)				
MFS-20-133A-N		71.0 (1803.4)	3.74 (95.0)	30.00/36.10 (762/864)			84.25 (2,140)
MFS-20-193A-N		68.2 (1732.2)	4.76 (120.9)	28.80/37.30 (732/947)			81.74 (2,076)
MFS-20-135A-N		70.7 (1795.7)	5.00 (127.0)	30.00/34.00 (762/864)			84.25 (2,140)
MFS-22-133A-N	22,000 (9979)	71.0 (1803.4)	3.74 (95.0)	30.00/36.10 (762/917)	Conventional	FL	84.25 (2,140)
MFS-22-135A-N		70.7 (1795.7)	5.00 (127.0)	30.00/34.00 (762/864)			84.25 (2,140)
MFS-22H-135A-N	22,800 (10341)	70.7 (1795.7)	5.00 (127.0)	30.00/34.00 (762/864)	Conventional	FL	84.25 (2,140)
MFS-22H-193A-N		68.2 (1732.2)	4.76 (120.9)	28.80/37.30 (732/947)			81.74 (2,076)

* SAE J1842

** Track is based on Meritor wheel-ends and tire size per family.

13X Series Family

MS-XX-13X Standard Track Structural Ratings for Rear Drive Axle Housings

					Standard Track	
MODEL	**GAWR lb (kg)**	**WHEEL END***	**MINIMUM MOUNTING CENTERS Inch (mm)**	**BOX SECTION Inch (mm)**	**NOMINAL TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**
MS-17-13X	17,500 (7,938)	L/R	40.00 (1016)	5.25 x 4.62 (134 x 117)	72.50 (1841.5)	0.37/0.43 (9.5/11.0)
MS-19-13X	19,000 (8,618)					

* SAE J1842

Note: It is required for vehicles operating in high center of gravity applications to use a minimum 11 mm housing wall thickness.

14X Series Family

MS-XX-14X and MT-XX-14X Standard Track and Wide Track Structural Ratings for Rear Drive Axle Housings

					Standard Track		Wide Track	
MODEL	**GAWR lb (kg)**	**WHEEL END***	**MINIMUM MOUNTING CENTERS Inch (mm)**	**BOX SECTION Inch (mm)**	**NOMINAL TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**	**NOMINAL TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**
MS-17-14X	17,500 (7,938)	L	40.00 (1016)	5.25 x 4.62 (134 x 117)	72.56 (1843)	0.37 (9.5)	N/A	N/A
MS-19-14X	19,000 (8,618)							
MS-17-14X	17,500 (7,938)	R			72.50 (1841.5)	0.37/0.43 (9.5/11.0)	78.12 (1984.0)	0.56 (14.3)
MS-19-14X	19,000 (8,618)							
MS-21-14X	21,000 (9,525)					0.43 (11.0)		
MT-40-14X	40,000 (18,144)		37.00 (940)			0.37 (9.5)		
MT-40-14X HE	40,000 (18,144)							
MT-40-14X	40,000 (18,144)		35.88 (911)			0.43 (11.0)		
MT-40-14X HE	40,000 (18,144)							
MT-40-14X Plus	40,000 (18,144)							
MT-44-14X	44,000 (19,958)					0.50 (12.7)		

* SAE J1842

2 Structure Charts/On-Highway

MS-XX-14X and MT-XX-14X DualTrac™ Structural Ratings for Rear Drive Axle Housings

					DualTrac™	
MODEL	**GAWR lb (kg)**	**WHEEL END***	**MINIMUM MOUNTING CENTERS Inch (mm)**	**BOX SECTION Inch (mm)**	**TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**
MS-17-14X	17,000 (7,711)	R	40.00 (1016)	5.25 x 4.62 (134 x 117)	75.50 (1918.0)	0.43 (11.0)
MS-19-14X	19,000 (8,618)					
MS-21-14X	21,000 (9,525)					
MT-40-14X	40,000 (18,144)					0.38/0.43 (9.5/11.0)
MT-40-14X Plus						0.43 (11.0)
MT-44-14X	Not Available In DualTrac™					

* SAE J1842

Notes: 14X Series Family

1. Wide Base Single Tire Applications:

   A. Meritor recommends the “DualTrac” (intermediate track) axle housing with 0.0” to 0.56” (maximum) outset wheel with a minimum 40” SMC (reference Meritor Product Information Letter #523 for additional information). The use of the DualTrac™ option with 0.0” outset wheel will position the load line in the optimal range for the industry standard “R” size wheel-end for wide base single tires.

      I. In order to comply with federal regulations for width size limits, Meritor recommends that the wide track housing be used with 0.0” outset wheels only.

      II. Wheel outset up to 2” (maximum) is only approved for standard track 11 mm axle housing wall thickness and 40” minimum suspension mounting centers for use in Linehaul and City Delivery applications with the following GAWR:

Standard Track Axle Housing – 11 mm Wall Thickness	
Maximum Track (inch)	**Tandem Maximum GAWR (lb)**
Up to 73.3	40,000
73.4-75.1	40,000
75.2-76.0	39,000

   B. Important considerations for Meritor Axle Housing:

      I. Unless otherwise specified by Meritor, it is customer/vehicle OEM responsibility to define wheel-end specifications and to qualify the ratings for the wheel-end system including hubs, wheels and tires and to define the proper wheel-end maintenance practices to avoid premature wheel-end issues.

         - The use of 2" outset wheels shifts the load line outboard, biasing the load distribution toward the outer bearing. It is therefore recommended that more recent pre-adjusted wheel-end systems with increased capability be used, rather than conventional or adjustable wheel-end systems.

      II. Follow OEM recommendations regarding inspection intervals and component replacement. Meritor recommends inspection of wheel-end system and replacement of components on at least an annual basis, with more frequent inspection and replacement as may be warranted by specific application. Reference TMC RP-644A (Wheel-End Conditions Analysis Guide), and appropriate manufacturer’s service recommendations for details.

III. Meritor recommends performing axle housing spindle inspection concurrently with the wheel-end inspection of the hub bearings, hub seals and lubricant. Evidence of axle housing spindle wear at bearing seats requires axle housing replacement. Do not repair the axle housing spindle.

- Do not install single wide base tires with 2" outset wheels on existing vehicles. Meritor does not approve such retrofits. Consult the vehicle OEM for guidance.

IV. Failure to follow these recommendations will void the Meritor warranty coverage.

2. It is required for vehicles operating in high center of gravity applications and/or operating primarily in Canada to use a minimum 11 mm housing wall thickness. It is recommended for other applications with more demanding side skid loading use a minimum 11 mm housing wall thickness.
3. L series wheel end and 9.5 mm housings are not approved for Mexico.
4. DualTrac™ approved for Linehaul and City Delivery, other vocations may be approvable (contact Meritor).

FUELite™ and FUELite+™ Tag Tandems (6x2 Configurations)*

					DualTrac™	
MODEL	**GAWR lb (kg)**	**WHEEL END****	**MINIMUM MOUNTING CENTERS Inch (mm)**	**BOX SECTION Inch (mm)**	**TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**
MA-40-165 MA-40-17X HE	40,000 (18,160)	R	40.00 (1016)	5.25 x 4.62 (134 x 117)	75.50 (1918.0)	0.50 (12.7) DualTrac™ Drive and Tag Axle

Note: Wheel outset values with wide base single tires approved in this document are 0.00 inch (zero) to 0.56 inch maximum. (See Meritor Product Information Letter No. 523 for additional information.)

*Approved for Linehaul and City Delivery, other vocations may be approvable (contact Meritor).
**SAE J1842

2 Structure Charts/On-Highway

160 Series Family

RS-XX-16X, RT-XX-16X, and RZ-166 Standard Track and Wide Track Structural Ratings for Rear Drive Axle Housings

					Standard Track		Wide Track	
MODEL	**GAWR lb (kg)**	**WHEEL END***	**MINIMUM MOUNTING CENTERS Inch (mm)**	**BOX SECTION Inch (mm)**	**NOMINAL TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**	**NOMINAL TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**
RS-21-160	21,000 (9,525)	R	40.00 (1016)	5.25 x 4.62 (134 x 117)	72.50 (1841.5)	0.43 (11.0)	78.12 (1984.0)	0.63 (16.0)
RS-23-160	23,000 (10,442)							
RS-23-161	23,000 (10,442)					0.50 (12.7)		
RS-24-160	24,000 (10,886)							
RS-25-160	25,000 (11,350)					0.63 (16.0)		
RT-40-160	40,000 (18,160)		35.88 (911)			0.43 (11.0)		
RT-46-160	46,000 (20,884)					0.50 (12.7)		
RT-46-164						0.63 (16.0)		
RT-50-160	50,000 (22,700)							
RZ-166	69,000** (31,326)							

*SAE J1842
**See Page 81 for GAWR ratings and required tire SLR.

RS-XX-160 Single and RT-XX160 DualTrac™ Track Structural Ratings

					DualTrac™	
MODEL	**GAWR lb (kg)**	**WHEEL END***	**MINIMUM MOUNTING CENTERS Inch (mm)**	**BOX SECTION Inch (mm)**	**NOMINAL TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**
RS-23-160	23,000 (10,442)	R	40.00 (1016)	5.25 x 4.62 (134 x 117)	75.50 (1918.0)	0.50 (12.7)
RT-46-160	46,000 (20865)					

Note: Wheel outset values with wide base single tires approved in this document are 0.00-inch (zero) to 0.56-inch maximum. (See Meritor Product Information Letter No. 523 for additional information.)

* SAE J1842

17X HE Series Family

17X HE Standard Track and DualTrac™ Track Structural Ratings

					Standard Track		DualTrac™	
MODEL	**GAWR lb (kg)**	**WHEEL END***	**MINIMUM MOUNTING CENTERS Inch (mm)**	**BOX SECTION Inch (mm)**	**TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**	**TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**
MS-23-17X HE	23,000 (10,442)	R	40.00 (1016)	5.25 x 4.62 (134 x 117)	72.50 (1841.5)	0.50 (12.7)	75.50 (1918)	0.50 (12.7)

Note: Wheel outset values with wide base single tires approved in this document are 0.00-inch (zero) to 0.56-inch maximum. (See Meritor Product Information Letter No. 523 for additional information.)

*SAE J1842

180/380 Series Family

RS-XX-18X, RT-XX-18X, and RZ-18X Standard Track and Wide Track Structural Ratings for Rear Drive Axle Housings

					Standard Track		Wide Track	
MODEL	**GAWR lb (kg)**	**WHEEL END***	**MINIMUM MOUNTING CENTERS Inch (mm)**	**BOX SECTION Inch (mm)**	**TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**	**TRACK Inch (mm)**	**HOUSING WALL THICKNESS Inch (mm)**
RS-23-186	23,000 (10,442)	R	35.88 (911)	5.25 x 4.62 (134 x 117)	72.50 (1841.5)	0.50 (12.7)	78.12 (1984.0)	0.63 (16.0)
RS-23-380								
RS-26-185/380	26,000 (11,793)			5.50 x 5.50 (140 x 140)		0.56 (14.3)		
RS-30-185/380	30,000 (13,620)	U	35.50 (901)		74.06 (1881.1)		80.00 (2032.0)	
RT-52-185/380	52,000 (23,608)	R	35.88 (911)		72.50 (1841.5)		78.12 (1984.0)	
RT-58-185/380	58,000 (26,332)	U	35.88 (911)		74.06 (1881.1)			
			40.00 (1016)				80.00 (2032.0)	0.56 (14.3)
			37.00 (940)					0.63 (16.0)
RZ-188	78,000** (35,380)	R	35.50 (901)	5.50 x 5.50 (140 x 140)	72.50 (1841.5)	0.56 (14.3)	78.12 (1984.0)	0.63 (16.0)

Note: Wheel outset values with wide base single tires approved in this document are 0.00-inch (zero) to 0.56-inch maximum. (See Meritor Product Information Letter No. 523 for additional information.)

* SAE J1842
** See Page 81 for GAWR ratings and required tire SLR.

2 Structure Charts/On-Highway

Suspension and Axle Housing Requirements

Single Axle, Minimum Housing Wall Thickness Requirement

SUSPENSION		MINIMUM WALL THICKNESS Inch (mm)		
TYPE	**REACTIVE***	**MS-17-14X MS-19-14X**	**MS-21-14X**	**RS-23-160**
Air Lightweight Trailing Arm	Y	0.37 (9.5)	0.43 (11.0)	0.43 (11.0)
Spring	N			

40,000 lb Minimum Housing Wall Thickness Requirement

SUSPENSION		MINIMUM WALL THICKNESS Inch (mm)	
TYPE	**REACTIVE***	**MT-40-14X**	**RT-40-160**
Wishbone	N	0.43 (11.0)	0.43 (11.0)
Walking Beam			
4 Spring		0.37 (9.5)	
Lightweight Trailing Arm Air Ride	Y		
Trailing Arm Air Ride		0.43 (11.0)	

46,000 lb Minimum Housing Wall Thickness Requirement

SUSPENSION		MINIMUM WALL THICKNESS Inch (mm)
TYPE	**REACTIVE***	**RT-46-160**
Wishbone	N	0.50 (12.7)
Walking Beam		
4 Spring		
Lightweight Trailing Arm Air Ride	Y	
Trailing Arm Air Ride		
Vocational Air Ride		

52,000 lb Minimum Housing Wall Thickness Requirement

SUSPENSION		MINIMUM WALL THICKNESS Inch (mm)	
TYPE	**REACTIVE***	**RT-52-185**	**RT-52-380**
Wishbone	N	0.56 (14.3)	0.56 (14.3)
Walking Beam			
Vocational Air Ride	Y		

58,000 lb Minimum Housing Wall Thickness Requirement

SUSPENSION		MINIMUM WALL THICKNESS Inch (mm)	
TYPE	**REACTIVE***	**RT-58-185**	**RT-58-380**
Wishbone	N	0.56 (14.3)	0.56 (14.3)
Walking Beam			

Note: When specifying a higher rated suspension than the accompanying axle or tandem, the maximum rating approved is the lower of the two assemblies.

Note: It is required for vehicles operating in high center of gravity applications and/or operating primarily in Canada to use a minimum 11 mm housing wall thickness.

* Uses housing as a torsional member of the suspension.

Trailing Arm Air Suspension Considerations

Trailing arm air suspensions induce a torsional load across the axle housing more than other types of suspensions, which could lead to carrier-to-housing leaks from joint flex or premature axle housing fatigue (depending on GAW, type of service and duty cycle). It is recommended that a housing minimum wall thickness of 11 mm is used with these types of suspensions.

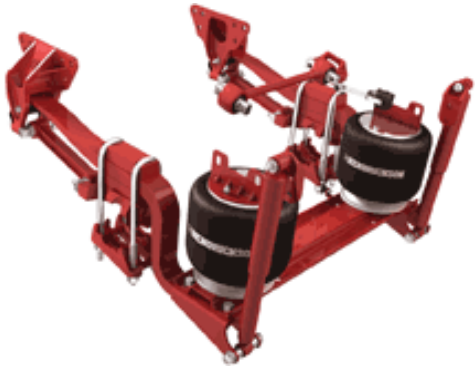
Note: It is required for vehicles operating in high center of gravity applications and/or operating primarily in Canada to use a minimum 11 mm housing wall thickness.

Suspension Type Glossary

Wishbone

Walking Beam

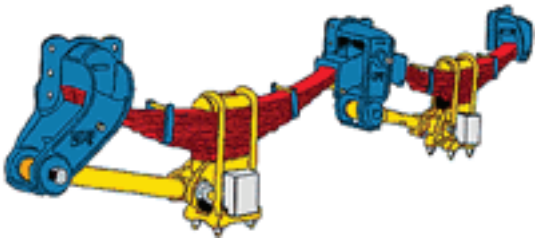
Lightweight Trailing Arm Air Ride



Vocational Air Ride

Trailing Arm Air Ride

Four Spring



SECTION 3 — RECOMMENDED APPLICATIONS/VOCATIONAL RATINGS

Vehicle Types by Vocation

ON-HIGHWAY VOCATIONS	VEHICLE TYPE			
City Delivery	Auto Hauling	General Freight	Pick-Up and Delivery	Tanker
	Beverage Truck	Livestock Hauler	Pipe Haul	Wrecker
	Chip Hauler	Meat Packer	Platform Auto Hauler	
	Disaster Support	Moving Van	Refrigerated Truck	
	Flatbed	Municipal Truck	Stake Truck	
Construction	Aircraft Refueler	Construction Material Hauler	Mixer	Tank Truck
	Asphalt Truck	Dump	Municipal Dumps	Utility Truck
	Block Truck	Flat Bed Truck	Snowplow/ Snowblower	
	Concrete Pumper	Landscaping Truck	Street Sweeper	
Heavy Haul*	Equipment Hauling	Lowboy	"Michigan Special" Steel Haul	Steel Hauling
	Flat Bed Trailer Haul			
Linehaul	Auto Hauler	Flatbed	Moving Van	Triples
	Bulk Hauler	General Freight	Pipe Haul	
	Chip Hauler	Grain Hauler	Refrigerated Freight	
	Doubles	Livestock Hauler	Tanker	
Logging*	Chip Hauler	"Michigan Special" Log Haul	Tractor/Trailer with jeeps	Tractor with pole trailers
	Log hauling			
Mining	Bottom Dump Trailer Combination	"Michigan Special" Gravel Trains	Semi-End Dump	Transfer Dump
	Hopper Trailer Combinations			
Oil Field*	Cementing Vehicle	Drill Rig	Geophysical Exploration	Tanker
	Demolition	Fracturing Truck	Rigging Truck	Winch Truck
Refuse*	Commercial Pick-Up	"Michigan Special" Waste Vehicle	Roll-Off	Transfer Vehicle
	Front Loader	Rear Loader	Scrap Truck	
	Hooklift	Recycling Truck	Sewer/Septic Vaccuum	
	Liquid Waste Hauler	Residential Pick-Up	Side Loader	

*Not approved for Mexico.

SPECIALITY VOCATIONS	VEHICLE TYPE			
Fire	Aerial Ladder Truck	Ambulance	Pumper	Tanker Truck
	Aerial Platform			
Intercity Coach	Commuter Coach	Cross Country Coach	Tour Bus	
Motorhome/RV	Integral Coach	Recreational Vehicle		
Rescue	Airport Rescue Fire (ARF)	Crash Fire Rescue (CFR)	Command Vehicle	Rapid Intervention Vehicle (RIV)
			Emergency Service	

SPECIALITY VOCATIONS	VEHICLE TYPE			
School Bus	Front Engine Commercial Chassis	Front Engine Integral Coach	Rear Engine Integral Coach	
Transit Coach	Airport Shuttle	City Bus	Shuttle Bus	Trolley
Yard Tractor	Load-On/Load-Off	Rail Yard Spotter	Stevedoring Tractor	Yard Jockey
	Port Tractor	Roll-On/Roll-Off	Trailer Spotter	

Meritor Axle Models – Gross Axle Weight Ratings (GAWR) for all Vocations

FRONT NON-DRIVE STEER AXLES						VOCATIONS													
GAWR lb (kg) (1000)	KPI INCHES (MM)	DROP INCHES (MM)	NOMINAL TRACK* (INCH)	NOMINAL TRACK* (MM)	MODEL	CITY DELIVERY	CONSTRUCTION	FIRE	HEAVY HAUL	INTERCITY COACH	LINEHAUL	LOGGING	MINING	MOTORHOME/RV	OIL FIELD	REFUSE	RESCUE	SCHOOL BUS	TRANSIT COACH	YARD TRACTOR
8 (3.6)	68 (1,727)	3.74 (95)	78.05	1982	MFS-08-113B-N	X	X	X						X				X	X	
	72 (1,829)		82.05	2084	MFS-08-153B-N	X	X	X						X				X	X	
	65.25 (1,657)		75.03	1906	MFS-08-163B-N	X	X	X						X				X	X	
10 (4.5)	69 (1,753)	3.50 (89)	79.54	2020	MFS-10-122A-N	X	X	X		X	X			X				X	X	
		5.00 (127)			MFS-10-124A-N	X	X	X		X	X			X				X	X	
	71.5 (1,816)	3.74 (95)	82.00	2083	MFS-10-143A-N	X	X	X		X	X			X				X	X	
		5.00 (127)			MFS-10-144A-N	X	X	X		X	X			X				X	X	
12 (5.4)	69 (1,753)	3.50 (89)	79.54	2020	MFS-12-122B-N	X	X	X		X	X	X	X	X	X			X	X	X
					MFS-12-122C-N	X	X	X		X	X	X	X	X	X			X	X	X
	71 (1,803)		82.00	2083	MFS-12-132B-N	X	X	X		X	X	X	X	X	X			X	X	X
					MFS-12-132C-N	X	X	X		X	X	X	X	X	X			X	X	X
12.5 (5.67)	69 (1,753)	3.50 (89)	79.54	2020	MFS-12E-122B-N	X	X	X		X	X	X	X	X	X			X	X	X
					MFS-12E-122C-N	X	X	X		X	X	X	X	X	X			X	X	X
	71 (1,803)		82.00	2083	MFS-12E-132B-N	X	X	X		X	X	X	X	X	X			X	X	X
					MFS-12E-132C-N	X	X	X		X	X	X	X	X	X			X	X	X
13 (5.9)	69 (1,753)	3.50 (89)	79.54	2020	MFS-13-122B-N	X	X	X		X	X	X	X	X	X			X	X	X
					MFS-13-122C-N	X	X	X		X	X	X	X	X	X			X	X	X
	71 (1,803)		82.00	2083	MFS-13-132B-N	X	X	X		X	X	X	X	X	X			X	X	X
					MFS-13-132C-N	X	X	X		X	X	X	X	X	X			X	X	X
13.2 (6)	69 (1,753)	3.50 (89)	79.54	2020	MFS-13B-122B-N	X	X	X		X	X	X	X	X	X			X	X	X
					MFS-13B-122C-N	X	X	X		X	X	X	X	X	X			X	X	X
	71 (1,803)		82.00	2083	MFS-13B-132B-N	X	X	X		X	X	X	X	X	X			X	X	X
					MFS-13B-132C-N	X	X	X		X	X	X	X	X	X			X	X	X
14.7 (6.7)	69.0 (1,752.6)	3.50 (88.9)	78.51	1994	MFS-14-122A-N	X	X	X	X	X	X	X	X	X	X			X	X	X
14.0 (6.4)					MFS-14-122B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14-122C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
14.7 (6.7)		5.00 (127.0)			MFS-14-124A-N	X	X	X	X	X	X	X	X	X	X			X	X	X
14.0 (6.4)	71.0 (1,803.4)	3.50 (88.9)	82.00	2057	MFS-14-132B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14-132C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
	71.5 (1,816.1)				MFS-14-142B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14-142C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
14.7 (6.7)		3.74 (95.0)			MFS-14-143A-N	X	X	X	X	X	X	X	X	X	X			X	X	X
		5.00 (127.0)			MFS-14-144A-N	X	X	X	X	X	X	X	X	X	X			X	X	X

3 Recommended Applications/Vocational Ratings

FRONT NON-DRIVE STEER AXLES						VOCATIONS													
GAWR lb (kg) (1000)	KPI INCHES (MM)	DROP INCHES (MM)	NOMINAL TRACK* (INCH)	NOMINAL TRACK* (MM)	MODEL	CITY DELIVERY	CONSTRUCTION	FIRE	HEAVY HAUL	INTERCITY COACH	LINEHAUL	LOGGING	MINING	MOTORHOME/RV	OIL FIELD	REFUSE	RESCUE	SCHOOL BUS	TRANSIT COACH	YARD TRACTOR
14.6 (6.6)	69.0 (1,752.6)	3.50 (88.9)	78.51	1994	MFS-14F-122B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14F-122C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
	71.0 (1,803.4)		82.00	2057	MFS-14F-132B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14F-132C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
	71.5 (1,816.1)				MFS-14F-142B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14F-142C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
14.7 (6.7)	69.0 (1,752.6)	3.50 (88.9)	78.51	1994	MFS-14G-122B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14G-122C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
	71.0 (1,803.4)		82.00	2057	MFS-14G-132B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14G-132C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
	71.5 (1,816.1)				MFS-14G-142B-N	X	X	X	X	X	X	X	X	X	X			X	X	X
					MFS-14G-142C-N	X	X	X	X	X	X	X	X	X	X			X	X	X
16 (7.3)	68.5 (1,740)	3.50 (89)	81.75	2076	MFS-16-192A-N	X	X	X	X	X	X	X	X	X	X	X			X	X
	68.2 (1,748)	4.76 (121)			MFS-16-193A-N	X	X	X	X	X	X	X	X	X	X	X			X	X
	68.83 (1,748)	5.00 (127)			MFS-16-194A-N	X	X	X	X	X	X	X	X	X	X	X			X	X
	69 (1,753)	3.50 (89)	82.25	2089	MFS-16-122A-N	X	X	X	X	X	X	X	X	X	X	X			X	X
	71.5 (1,816)	3.74 (95)	84.75	2153	MFS-16-143A-N	X	X	X	X	X	X	X	X	X	X	X			X	X
	71 (1,803)		84.25	2140	MFS-16-133A-N	X	X	X	X	X	X	X	X	X	X	X			X	X
	70.7 (1,796)	5.00 (127)			MFS-16-135A-N	X	X	X	X	X	X	X	X	X	X	X			X	X
18 (8.2)	68.5 (1,740)	3.50 (89)	81.74	2076	MFS-18-192A-N	X	X	X	X		X	X	X		X	X				X
	68.83 (1,748)	5.00 (127)			MFS-18-194A-N	X	X	X	X		X	X	X		X	X				X
	71 (1,803)	3.74 (95)	84.25	2140	MFS-18-133A-N	X	X	X	X		X	X	X		X	X				X
	68.2 (1,732)	4.76 (121)	81.74	2076	MFS-18-193A-N	X	X	X	X		X	X	X		X	X				X
	70.7 (1,796)	5.00 (127)	84.25	2140	MFS-18-135A-N	X	X	X	X		X	X	X		X	X				X
20 (9)	68.5 (1,740)	3.50 (89)	78.50	1994	MFS-20-192A-N	X	X	X	X		X	X	X		X	X				X
	68.83 (1,748)	5.00 (127)	81.75	2076	MFS-20-194A-N	X	X	X	X		X	X	X		X	X				X
	71 (1,803)	3.74 (95)	84.25	2140	MFS-20-133A-N	X	X	X	X		X	X	X		X	X				X
	68.2 (1,732)	4.76 (121)	81.74	2076	MFS-18-193A-N	X	X	X	X		X	X	X		X	X				X
	70.7 (1,796)	5.00 (127)	84.25	2140	MFS-18-135A-N	X	X	X	X		X	X	X		X	X				X
21.5 (9.8)**	68.5 (1,740)	3.50 (89)	78.50	1994	MFS-20-192A-N			X								X				
	68.83 (1,748)	5.00 (127)	81.75	2076	MFS-20-194A-N			X								X				
	71 (1,803)	3.74 (95)	84.25	2140	MFS-20-133A-N			X								X				
22 (10)	71 (1,803)	3.74 (95)	84.25	2140	MFS-22-133A-N			X								X				
	70.7 (1,796)	5.00 (127)			MFS-22-135A-N			X								X				
22.8 (10.3)	70.7 (1,796)	5.00 (127)	81.75	2076	MFS-22H-135A-N			X								X				
	68.2 (1,732)	4.76 (121)			MFS-22H-193A-N			X								X				

X = Recommended
*Track can vary with mounting centers
**Not approved for Mexico

Meritor Axle Models – Gross Axle Weight Ratings (GAWR) for all Vocations

SINGLE REAR DRIVE AXLES						VOCATIONS														
GAWR lb (kg) (1000)	HWT INCHES (MM)	WHEEL END*	NOMINAL TRACK** (INCH)	NOMINAL TRACK** (MM)	MODEL	CITY DELIVERY	CONSTRUCTION	FIRE	HEAVY HAUL	INTERCITY COACH	LINEHAUL	LOGGING	MINING	MOTORHOME/RV	OIL FIELD	REFUSE	RESCUE	SCHOOL BUS	TRANSIT COACH	YARD TRACTOR
17.5 (8)	0.38 (9.5) 0.44 (11)	R	72.50	1842	MS-17-13X	X	X	X						X				X		
					MS-17-14X	X	X	X			X			X				X		
		L	72.56	1843	MS-17-13X	X	X	X						X				X		
					MS-17-14X	X	X	X			X			X				X		
19 (8.5)		R	72.50	1842	MS-19-13X	X	X	X						X				X		
					MS-19-14X	X	X	X			X			X				X		
		L	72.56	1843	MS-19-13X	X	X	X						X				X		
					MS-19-14X	X	X	X			X			X				X		
21 (9.5)	0.44 (11.0)	R	72.50	1842	MS-21-14X	X	X	X			X			X				X		
					RS-21-160	X	X				X					X				
					RS-21-230 (Two-Speed)	X	X													
22 (10)					MS-21-14X			X												
	0.56 (14.3)				MC-22-14X			X		X										
23 (10.5)					MC-22-14X			X										X		
	0.44 (11.0)				RS-23-160	X	X	X			X			X		X	X	X		
	0.50 (12.7)				RS-23-161	X	X	X			X					X	X	X		
					MS-23-17X HE						X									
					RS-23-186	X	X	X			X					X	X			X
					RS-23-240 (Two-Speed)	X	X													
					RS-23-380 (Double Reduction)		X													
	0.63 (16)		75.25	1912	MC-23-162					X				X				X		
					MC-23-165					X				X				X		
24 (10.9)	0.50 (12.7)		72.25	1835	RS-23-161			X									X			
					RS-23-186			X									X			
					RS-24-160			X									X			X
25 (11.4)	0.63 (16)				MC-25-160					X									X	
26 (12)	0.56 (14.3)				RS-26-185	X	X	X								X	X			
					RS-26-380 (Double Reduction)		X													
27 (12.3)	0.63 (16)		72.50	1842	RS-25-160			X									X			
	0.56 (14.3)				RS-26-185			X									X			
28.7 (13)	Cast housing	S	76.50	1943	79163					X									X	
30 (13.5)	0.50 (12.7)	R	72.5	1842	RS-23-380 (Double Reduction)															
					RS-23-186															X
					RS-24-160															X
	0.56 (14.3)	U	74.00	1880	RS-30-185		X	X								X	X			
					RS-30-380 (Double Reduction)		X									X				X
31 (14.1)					RS-30-185			X									X			
42 (19.1)	0.56 (14.3)	U	74.00	1880	RS-30-185															
					RS-30-380 (Double Reduction)															X

X = Recommended

* SAE J1842

** Track can vary with mounting centers

3 Recommended Applications/Vocational Ratings

Meritor Axle Models – Gross Axle Weight Ratings (GAWR) for all Vocations

TANDEM REAR DRIVE AXLES						VOCATIONS													
GAWR lb (kg) (1000)	HWT INCHES (MM)	WHEEL END*	NOMINAL TRACK** (INCH)	NOMINAL TRACK** (MM)	MODEL	CITY DELIVERY	CONSTRUCTION	FIRE	HEAVY HAUL	INTERCITY COACH	LINEHAUL	LOGGING	MINING	MOTORHOME/RV	OIL FIELD	REFUSE	RESCUE	SCHOOL BUS	TRANSIT COACH	YARD TRACTOR
40 (18.2)	0.38 (9.5)*	R	72.25	1835	MT-40-14X	X					X									
					MT-40-14X HE	X					X									
	0.44 (11.0)				MT-40-14X	X	X	X			X	X	X		X	X				X
					MT-40-14X HE	X					X									
					MT-40-14X Plus	X	X	X			X	X	X		X	X				X
					RT-40-160	X	X	X			X	X	X		X	X				
	0.50 (12.7)		75.50	1918	MA-40-165	X					X									
					MA-40-17X HE						X									
44 (20.0)			72.50	1841.5	MT-44-14X		X	X								X				
46 (20.9)					RT-46-160	X	X	X	X		X	X	X		X	X	X			X
	0.63 (16.0)				RT-46-164		X	X	X			X	X		X	X	X			X
48 (21.8)	0.50 (12.7)				RT-46-160			X									X			X
	0.63 (16.0)				RT-46-164			X									X			X
50 (22.7)					RT-50-160		X	X	X		X	X	X		X	X	X			X
52 (23.6)	0.50 (12.7)				RT-46-160	X														X
	0.63 (16.0)				RT-50-160			X									X			
	0.56 (14.3)				RT-52-185	X	X	X	X			X	X		X	X	X			
					RT-52-380		X		X			X	X		X					
54 (24.5)					RT-52-185			X									X			
58 (26.3)		U	74.00	1880	RT-58-185	X	X	X	X			X	X		X	X	X			
					RT-58-380		X		X			X	X		X					

* 9.5 mm HWT not approved for high CG and/or vehicles operating primarily in Canada.

FRONT DRIVE STEER AXLES					VOCATIONS														
GAWR lb (kg) (1000)	KPI INCHES (MM)	NOMINAL TRACK** (INCH)	NOMINAL TRACK** (MM)	MODEL	CITY DELIVERY	CONSTRUCTION	FIRE	HEAVY HAUL	INTERCITY COACH	LINEHAUL	LOGGING	MINING	MOTORHOME/RV	OIL FIELD	REFUSE	RESCUE	SCHOOL BUS	TRANSIT COACH	YARD TRACTOR
10 (4.5)	69.00 (1753) 70.47 (1790)	83.50 85.00	2121 2159	MX-10-120-EVO	X	X	X						X	X					
12 (5.4)				MX-12-120-EVO	X	X	X						X	X					
14 (6.4)				MX-14-120-EVO	X	X	X						X	X					
14 (6.4)				MX-14-120-EVO	X	X	X						X	X					
16 (7.3)				MX-16-120	X	X	X						X	X					
18 (8.2)				MX-18-120	X	X	X						X	X					
17 (7.7)	66.50 (1689)	83.73	2127	MX-17-140		X	X						X						
19.2 (8.5)				MX-19-140		X	X						X						
21 (9.5)				MX-21-140		X	X						X						
				MX-21-160		X	X						X						
23 (10.5)				MX-23-160R		X	X						X						
23 (10.5)	68.8 (1748)	84.30	2141	MX-23-810	Contact Meritor														

* SAE J1842
**Track can vary with mounting centers

CITY DELIVERY

Vocational Definition

- City Delivery is defined as pick-up and delivery service typically within cities and/or suburban areas

Operating Conditions

- Variety of terrain conditions: light grade (0-8%), moderate grade (0-12%), severe grade (0-20%)
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces
- Operation is 100% on-road
- Duty cycles are typically defined as fully loaded (up to 100% GCW) going and empty (up to 40% GCW) return
- Start/Stop Cycle: 3 miles on average
- **Category A** job sites/terminals/docks/transfer sites: Pavement, concrete, or maintained and hard-packed gravel.
- **Category B** job sites/terminals/docks/transfer sites: Loose or unmaintained sand, dirt, or gravel, landfill, farm field, mud, or other similar surfaces.

Vehicle Types

- Beverage Truck
- Disaster Support
- Flatbed
- General Freight
- Meat Packer
- Moving Van
- Municipal Truck
- Pick-Up and Delivery
- Pipe Hauler
- Platform Auto Hauler
- Refrigerated Truck
- Stake Truck
- Wrecker

High CG Vehicle Types

- Auto Hauler
- Bulk Hauler
- Chip Hauler
- Grain Hauler
- Livestock Hauler
- Tanker

Vehicle Configuration	Approved	Not Approved
4X2 Straight trucks and tractors	X	
6X2 Straight trucks and tractors with non-liftable auxiliary axle	X	
6X4 Straight trucks and tractors	X	
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
DualTrac for wide-based single tires (See Page 12)	X	
Single VRD (retarder)	X	
Multiple VRD (retarders)		X
Maximum tire static loaded radius 21.1"	X	

Notes:

1. The MT-40-14X with 35.88" suspension mounting centers require the 11 mm housing wall thickness.
2. The conditions of all applicable notes starting on Page 2 must be met.
3. It is required for vehicles operating in high center of gravity applications and/or operating primarily in Canada to use a minimum 11 mm housing wall thickness..
4. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
5. The following GVW ratings are approved for straight trucks (GVW ratings cannot exceed the GCW Axle Ratings):

MS-13X (Duty I/Duty II)	MS-14X	RS-16X/RS-18X	MT-14X/14X HE	MT-14X Plus	MT-44-14X	RT-16X/RZ-166/ RT-185/RZ-188
33,000 lb/25,000 lb	33,000 lb	50,000 lb	68,000 lb	70,000 lb	72,000 lb	100,000 lb

3 Recommended Applications/Vocational Ratings

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GCW	≤ 40% GCW	8%	On-Road – Light Grades
II	≤ 100% GCW	≤ 40% GCW	12%	On-Road – Moderate Grades
III	≤ 100% GCW	≤ 40% GCW	20%	On-Road – Steep Grades

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
MS-xx-13X 860 lb-ft (1160 Nm)	3.90	8,500	11,524	41 (19)	33 (15)	Contact Meritor
	4.11	8,200	11,118	41 (19)	33 (15)	
	4.33	8,000	10,847	41 (19)	33 (15)	
	4.63	7,600	10,304	41 (19)	33 (15)	
	4.88	7,200	9,762	41 (19)	33 (15)	
	5.13	6,800	9,220	41 (19)	33 (15)	
	5.29	6,600	8,948	41 (19)	33 (15)	
	5.57	6,300	8,542	41 (19)	28 (13)	
	5.83	5,200	7,050	34 (15)	25 (11)	
	6.17	5,000	6,779	31 (14)	25 (11)	
	6.50	4,750	6,440	31 (14)	25 (11)	
MS-xx-14X Hypoid 1200 lb-ft (1627 Nm)	2.64	11,500	15,591	55 (25)	45 (20)	40 (18)
	2.79	11,500	15,591	55 (25)	45 (20)	40 (18)
	3.08	11,500	15,591	55 (25)	45 (20)	40 (18)
	3.25	12,700	17,217	55 (25)	45 (20)	40 (18)
	3.36	12,700	17,217	55 (25)	45 (20)	40 (18)
	3.42	12,700	17,217	55 (25)	45 (20)	40 (18)
	3.55	11,300	15,319	55 (25)	45 (20)	40 (18)
	3.70	11,200	15,184	55 (25)	45 (20)	40 (18)
	3.90	10,200	13,828	55 (25)	45 (20)	35 (16)
	4.11	9,800	13,286	55 (25)	45 (20)	35 (16)
	4.33	9,500	12,879	55 (25)	45 (20)	35 (16)
	4.63	9,500	12,879	55 (25)	45 (20)	35 (16)
	4.88	9,000	12,201	55 (25)	40 (18)	35 (16)
	5.13	8,200	11,117	55 (25)	40 (18)	35 (16)
	5.29	8,300	11,252	55 (25)	40 (18)	35 (16)
	5.57	7,200	9,761	55 (25)	35 (16)	30 (14)
	5.86	6,100	8,270	50 (23)	30 (14)	25 (11)
	6.14	5,900	7,999	45 (20)	30 (14)	25 (11)
	6.43	5,400	7,321	45 (20)	30 (14)	25 (11)
	6.83	5,100	6,914	45 (20)	30 (14)	25 (11)
	7.17	4,700	6,372	35 (16)	25 (11)	20 (9)

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
RS-xx-160/161 1850 lb-ft (2508 Nm)	2.67	21,000	28,472	80 (36)	70 (32)	55 (25)
	2.80	21,000	28,472	80 (36)	70 (32)	55 (25)
	2.93	21,000	28,472	80 (36)	70 (32)	55 (25)
	3.07	21,000	28,472	80 (36)	70 (32)	55 (25)
	3.21	21,000	28,472	80 (36)	70 (32)	55 (25)
	3.42	21,000	28,472	80 (36)	70 (32)	55 (25)
	3.58	20,800	28,201	80 (36)	70 (32)	55 (25)
	3.73	20,800	28,201	80 (36)	65 (29)	55 (25)
	3.91	20,800	28,201	80 (36)	65 (29)	55 (25)
	4.10	20,800	28,201	80 (36)	65 (29)	55 (25)
	4.30	19,100	25,896	80 (36)	65 (29)	55 (25)
	4.56	17,400	23,591	80 (36)	65 (29)	55 (25)
	4.89	15,500	21,015	80 (36)	55 (25)	45 (20)
	5.13	14,300	19,388	80 (36)	55 (25)	45 (20)
	5.38	13,100	17,761	80 (36)	55 (25)	45 (20)
	5.63	11,500	15,592	80 (36)	55 (25)	45 (20)
	6.14	10,200	13,829	80 (36)	50 (23)	40 (18)
	6.43	8,900	12,067	70 (32)	50 (23)	40 (18)
	6.83	8,900	12,067	70 (32)	50 (23)	40 (18)
	7.17	8,000	10,846	65 (29)	45 (20)	30 (14)
RS-xx-185/186 1850 lb-ft (2508 Nm)	3.42	23,000	31,183	110 (50)	80 (36)	55 (25)
	3.58	22,100	29,963	110 (50)	80 (36)	55 (25)
	3.73	22,100	29,963	110 (50)	80 (36)	55 (25)
	4.30	20,300	27,523	110 (50)	80 (36)	55 (25)
	4.56	19,500	26,438	105 (48)	80 (36)	55 (25)
	4.89	15,800	21,422	105 (48)	80 (36)	55 (25)
	5.13	16,900	22,913	100 (45)	80 (36)	55 (25)
	5.38	15,200	20,608	100 (45)	80 (36)	55 (25)
	5.63	12,900	17,490	80 (36)	70 (32)	55 (25)
	5.86	14,200	19,252	80 (36)	70 (32)	55 (25)
	6.14	12,000	16,270	70 (32)	70 (32)	55 (25)
	6.83	10,200	13,829	70 (32)	70 (32)	55 (25)
	7.17	9,200	12,473	70 (32)	70 (32)	45 (20)
MT-40-14X HE 1850 lb-ft (2508 Nm)*	2.64	23,000	31,181	90 (41)	80 (36)	70 (32)
	2.79	23,000	31,181	90 (41)	80 (36)	70 (32)
	2.85	23,000	31,181	90 (41)	80 (36)	65 (29)
	2.93	23,000	31,181	85 (39)	80 (36)	65 (29)
	3.08	23,000	31,181	85 (39)	80 (36)	65 (29)
	3.25	23,000	31,181	85 (39)	80 (36)	65 (29)
	3.36	23,000	31,181	85 (39)	80 (36)	65 (29)
	3.42	23,000	31,181	80 (36)	80 (36)	65 (29)
	3.55	22,100	29,961	80 (36)	80 (36)	65 (29)
	3.70	22,100	29,961	80 (36)	80 (36)	65 (29)
	3.90	22,100	29,961	80 (36)	80 (36)	65 (29)

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
MT-40-14X Hypoid 1650 lb-ft (2237 Nm)	2.64	23,000	31,181	90 (41)	90 (41)	80 (36)
	2.79	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.08	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.25	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.36	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.42	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.55	22,100	29,961	90 (41)	90 (41)	80 (36)
	3.70	22,100	29,961	90 (41)	90 (41)	80 (36)
	3.90	22,100	29,961	90 (41)	90 (41)	80 (36)
	4.11	22,100	29,961	90 (41)	90 (41)	80 (36)
	4.33	21,800	29,554	90 (41)	90 (41)	80 (36)
	4.63	20,400	27,656	90 (41)	85 (39)	80 (36)
	4.88	18,000	24,403	90 (41)	85 (39)	75 (34)
	5.29	16,600	22,505	90 (41)	80 (36)	70 (32)
	5.86	12,200	16,540	90 (41)	65 (29)	55 (25)
	6.14	11,800	15,997	90 (41)	65 (29)	55 (25)
	6.43	10,900	14,777	90 (41)	65 (29)	50 (23)
	6.83	10,300	13,964	90 (41)	65 (29)	50 (23)
	7.17	9,500	12,879	90 (41)	60 (27)	50 (23)
MT-40-14X Plus Hypoid 1850 lb-ft (2508 Nm)	2.64	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.08	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.25	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.36	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.42	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.55	22,100	29,961	90 (41)	90 (41)	80 (36)
	3.70	22,100	29,961	90 (41)	90 (41)	80 (36)
	3.90	22,100	29,961	90 (41)	90 (41)	80 (36)
	4.11	22,100	29,961	90 (41)	90 (41)	80 (36)
	4.33	21,800	29,554	90 (41)	90 (41)	80 (36)
	4.63	20,400	27,656	90 (41)	85 (39)	80 (36)
	4.88	18,000	24,403	90 (41)	85 (39)	75 (34)
	5.29	16,600	22,505	90 (41)	80 (36)	70 (32)
	5.86	12,200	16,540	90 (41)	65 (29)	55 (25)
	6.14	11,800	15,997	90 (41)	65 (29)	55 (25)
	6.43	10,900	14,777	90 (41)	65 (29)	50 (23)
MT-40-14X Amboid 1650 lb-ft (2237 Nm)	2.64	23,000	31,181	90 (41)	90 (41)	80 (36)
	2.79	23,000	31,181	90 (41)	90 (41)	80 (36)
	2.85	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.08	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.25	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.36	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.42	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.55	22,100	29,961	90 (41)	90 (41)	80 (36)
	3.70	22,100	29,961	90 (41)	90 (41)	80 (36)
	3.90	22,100	29,961	90 (41)	90 (41)	80 (36)
	4.11	22,100	29,961	90 (41)	90 (41)	80 (36)

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
MT-40-14X Plus Amboid 1850 lb-ft (2508 Nm)	2.64	23,000	31,181	90 (41)	90 (41)	80 (36)
	2.79	23,000	31,181	90 (41)	90 (41)	80 (36)
	2.85	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.08	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.25	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.36	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.42	23,000	31,181	90 (41)	90 (41)	80 (36)
	3.55	22,100	29,961	90 (41)	90 (41)	80 (36)
	3.70	22,100	29,961	90 (41)	90 (41)	80 (36)
	3.90	22,100	29,961	90 (41)	90 (41)	80 (36)
	4.11	22,100	29,961	90 (41)	90 (41)	80 (36)
MT-40-14X Hypoid 1850 lb-ft (2508 Nm)	2.64	23,000	31,181	80 (36)	Not Applicable	Not Applicable
	2.79	23,000	31,181	80 (36)		
	3.08	23,000	31,181	80 (36)		
	3.25	23,000	31,181	80 (36)		
	3.36	23,000	31,181	80 (36)		
	3.42	23,000	31,181	80 (36)		
	3.55	22,100	29,961	80 (36)		
	3.70	22,100	29,961	80 (36)		
	3.90	22,100	29,961	80 (36)		
	4.11	22,100	29,961	80 (36)		
	4.33	21,800	29,961	80 (36)		
	4.63	20,400	27,656	80 (36)		
	4.88	18,000	24,403	80 (36)		
	5.29	16,600	22,505	80 (36)		
	5.86	12,200	1,640	80 (36)		
	6.14	11,800	15,997	80 (36)		
	6.43	10,900	14,777	80 (36)		
	6.83	10,300	13,964	80 (36)		
	7.17	9,500	12,879	80 (36)		
MT-40-14X Amboid 1850 lb-ft (2508 Nm)	2.64	23,000	31,181	80 (36)	Not Applicable	Not Applicable
	2.79	23,000	31,181	80 (36)		
	2.85	23,000	31,181	80 (36)		
	3.08	23,000	31,181	80 (36)		
	3.25	23,000	31,181	80 (36)		
	3.36	23,000	31,181	80 (36)		
	3.42	23,000	31,181	80 (36)		
	3.55	22,100	29,961	80 (36)		
	3.70	22,100	29,961	80 (36)		
	3.90	22,100	29,961	80 (36)		
	4.11	22,100	29,961	80 (36)		
RT-xx-160/164 2050 lb-ft (2779 Nm) **RZ-166 Tridem 2050 lb-ft (2779 Nm) See Note 5.**	3.07	30,000	40,674	140 (63.5)	140 (63.5)	Contact Meritor

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
RT-xx-160/164 2050 lb-ft (2779 Nm) **RZ-166 Tridem 2050 lb-ft (2779 Nm) See Note 5.**	3.21	30,000	40,674	140 (63.5)	140 (63.5)	Contact Meritor
	3.42	30,000	40,674	140 (63.5)	140 (63.5)	
	3.58	30,000	40,674	140 (63.5)	140 (63.5)	
	3.73	30,000	40,674	140 (63.5)	140 (63.5)	
	3.91	30,000	40,674	140 (63.5)	140 (63.5)	
	4.10	30,000	40,674	140 (63.5)	140 (63.5)	
	4.30	30,000	40,674	130 (59)	130 (59)	
	4.56	30,000	40,674	130 (59)	130 (59)	
	4.89	30,000	40,674	120 (54.5)	120 (54.5)	
	5.38	26,200	35,522	110 (50)	110 (50)	
	5.63	23,000	31,181	110 (50)	110 (50)	
	6.14	20,400	27,656	90 (41)	90 (41)	
	6.43	17,800	24,133	90 (41)	90 (41)	
	6.83	17,800	24,133	80 (36)	80 (36)	
	7.17	16,000	21,693	70 (32)	70 (32)	
RT-xx-185 2050 lb-ft (2779 Nm) **RZ-188 Tridem 2050 lb-ft (2779 Nm) See Note 5.**	3.73	30,000	40,674	185 (84)	170 (77)	135 (61)
	4.30	30,000	40,674	185 (84)	170 (77)	135 (61)
	4.56	30,000	40,674	180 (82)	170 (77)	135 (61)
	4.89	30,000	40,674	180 (82)	155 (70)	120 (54.5)
	5.38	30,000	40,674	160 (73)	155 (70)	120 (54.5)
	6.14	24,000	32,539	154 (70)	155 (70)	120 (54.5)
	6.83	20,400	27,656	130 (59)	155 (70)	120 (54.5)
	7.17	18,000	24,947	120 (54)	155 (70)	120 (54.5)

* These axle models are not approved for Category B jobsite conditions.

FUELite™ 6X2 Tandem – Axle Rating 40K GAWR Max

Axle Model Gross Engine Torque		Input Torque		Maximum GCW lb (kg) (1000)	
	Ratios	lb-ft	Nm	Duty I	Duty II
MA-40-165 Hypoid 1850 lb-ft (2508 Nm)	2.67	21,000	28,472	80 (36)	70 (32)
	2.80	21,000	28,472	80 (36)	70 (32)
	2.93	21,000	28,472	80 (36)	70 (32)
	3.07	21,000	28,472	80 (36)	70 (32)
	3.21	21,000	28,472	80 (36)	70 (32)
	3.42	21,000	28,472	80 (36)	70 (32)
	3.58	20,800	28,201	80 (36)	70 (32)
	3.73	20,800	28,201	80 (36)	65 (29)
	3.91	20,800	28,201	80 (36)	65 (29)
	4.10	20,800	28,201	80 (36)	65 (29)
	4.30	19,100	25,896	80 (36)	65 (29)
	4.56	17,400	23,591	80 (36)	65 (29)
	4.89	15,500	21,015	80 (36)	55 (25)

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GVW/GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. Engine retarders using exhaust, turbo, or compression brakes are approved for use with MS-xx-13X. Retarders of any other type (i.e. transmission or electric retarders) are not approved for use with MS-xx-13X.
4. For Tridems, see Page 80 for available ratios, GAWR ratings and required tire SLR.
5. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

CONSTRUCTION

Vocational Definition

- Construction is defined as the movement of materials or equipment to and from a job site

Operating Conditions

- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces (on-road) 90% of the time and into job sites of sandy, muddy, or other unmaintained surfaces (off-road) for 10% of the time
- Duty cycles are typically defined as fully loaded (up to 100% GVW/GCW) going and empty (up to 40% GVW/GCW) return
- Utility trucks are considered to be fully loaded round trip
- Start/Stop Cycle: Typically 3 miles or less on average

Vehicle Types

- Aircraft Refueler
- Asphalt Truck
- Block Truck
- Concrete Pumper
- Construction Material Hauler
- Dump
- Flat Bed Truck
- Landscaping Truck
- Mixer
- Municipal Dumps
- Snowplow/Snow Blower
- Street Sweeper
- Tank Truck
- Utility Truck

Vehicle Configuration	Approved	Not Approved
4X2, 4X4, 6X4, 6X6, 8X4, 8X6, 10X4, 10X6 Straight trucks	X	
Straight trucks with equipment trailers	X	
6X4 Truck/trailer or tractor/trailer	X	
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
All wheel drive vehicles (see Section 4)		Contact Meritor
Single VRD (retarder)	X	
Multiple VRD (retarders)		See Note 15 on Page 2
Maximum tire static loaded radius 21.1”	X	

Notes:

1. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. Duty I GVW ratings may require the use of auxiliary axles to attain the ratings shown.
3. The conditions of all applicable notes starting on Page 2 must be met.

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GVW	≤ 40% GVW	12%	Truck Only - On-Road >90% / Off-Road <10%
II	≤ 100% GCW	≤ 40% GCW	12%	Tractor+Trailer Only - On-Road >90% / Off-Road <10%
III	≤ 100% GCW	≤ 40% GCW	8%	Tractor+Trailer Only - On-Road >90% / Off-Road <10%

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)	Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I*	Duty II	Duty III
MS-xx-13X 660 lb-ft (895 Nm)	3.90	8,500	11,524	25 (11)	Not Applicable	Not Applicable
	4.11	8,200	11,118	25 (11)		
	4.33	8,000	10,847	25 (11)		
	4.63	7,600	10,304	25 (11)		
	4.88	7,200	9,762	25 (11)		
	5.13	6,800	9,220	25 (11)		
	5.29	6,600	8,948	25 (11)		
	5.57	6,300	8,542	25 (11)		
	5.83	5,200	7,050	20 (9)		
	6.17	5,000	6,779	19 (9)		
	6.50	4,750	6,400	19 (9)		
MS-xx-14X Hypoid 1200 lb-ft (1627 Nm)	3.36	12,700	17,217	33 (15)	Contact Meritor	45 (20)
	3.42	12,700	17,217	33 (15)		45 (20)
	3.55	11,300	15,319	33 (15)		45 (20)
	3.70	11,200	15,184	33 (15)		45 (20)
	3.90	10,200	13,828	33 (15)		45 (20)
	4.11	9,800	13,286	33 (15)		45 (20)
	4.33	9,500	12,879	33 (15)		45 (20)
	4.63	9,500	12,879	33 (15)		45 (20)
	4.88	9,000	12,201	33 (15)		45 (20)
	5.13	8,200	11,117	33 (15)		45 (20)
	5.29	8,300	11,252	33 (15)		45 (20)
	5.57	7,200	9,761	33 (15)		45 (20)
	5.86	6,100	8,270	33 (15)		45 (20)
	6.14	5,900	7,999	33 (15)		45 (20)
	6.43	5,400	7,321	33 (15)		45 (20)
	6.83	5,100	6,914	33 (15)		45 (20)
	7.17	4,700	6,372	33 (15)		45 (20)

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)	Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I*	Duty II	Duty III
RS-xx-160/161 1850 lb-ft (2508 Nm)	2.80	21,000	28,472	50 (23)	74 (33)	80 (36)
	2.93	21,000	28,472	50 (23)	74 (33)	80 (36)
	3.07	21,000	28,472	50 (23)	74 (33)	80 (36)
	3.21	21,000	28,472	50 (23)	74 (33)	80 (36)
	3.42	21,000	28,472	50 (23)	74 (33)	80 (36)
	3.58	20,800	28,201	50 (23)	74 (33)	80 (36)
	3.73	20,800	28,201	50 (23)	74 (33)	80 (36)
	3.91	20,800	28,201	50 (23)	74 (33)	80 (36)
	4.10	20,800	28,201	50 (23)	74 (33)	80 (36)
	4.30	19,100	25,896	50 (23)	74 (33)	80 (36)
	4.56	17,400	23,591	50 (23)	74 (33)	80 (36)
	4.89	15,500	21,015	50 (23)	74 (33)	80 (36)
	5.13	14,300	19,388	50 (23)	74 (33)	80 (36)
	5.38	13,100	17,761	50 (23)	74 (33)	80 (36)
	5.63	11,500	15,592	50 (23)	74 (33)	80 (36)
	6.14	10,200	13,829	50 (23)	74 (33)	80 (36)
	6.43	8,900	12,067	50 (23)	74 (33)	74 (33)
	6.83	8,900	12,067	50 (23)	74 (33)	74 (33)
	7.17	8,000	10,846	50 (23)	74 (33)	74 (33)
RS-xx-185/186 1850 lb-ft (2508 Nm)	3.42	23,000	31,183	50 (23)	80 (36)	110 (50)
	3.58	22,100	29,963	50 (23)	80 (36)	110 (50)
	3.73	22,100	29,963	50 (23)	80 (36)	110 (50)
	4.30	20,300	27,523	50 (23)	80 (36)	110 (50)
	4.56	19,500	26,438	50 (23)	80 (36)	110 (50)
	4.89	15,800	21,422	50 (23)	80 (36)	110 (50)
	5.13	16,900	22,913	50 (23)	80 (36)	105 (48)
	5.38	15,200	20,608	50 (23)	80 (36)	105 (48)
	5.63	12,900	17,490	50 (23)	80 (36)	100 (45)
	5.86	14,200	19,252	50 (23)	70 (32)	80 (36)
	6.14	12,000	16,270	50 (23)	70 (32)	70 (32)
	6.83	10,200	13,829	50 (23)	70 (32)	70 (32)
	7.17	9,200	12,473	50 (23)	70 (32)	70 (32)
	7.83	9,200	12,473	50 (23)	70 (32)	70 (32)
RS-xx-380 1850 lb-ft (2508 Nm)	5.52	13,600	18,439	50 (23)	Contact Meritor	Contact Meritor
	6.07	13,600	18,439	50 (23)		
	6.37	13,600	18,439	50 (23)		
	6.75	13,100	17,761	50 (23)		
	7.24	10,600	14,371	50 (23)		
	7.83	10,200	13,829	50 (23)		
	9.14	8,000	10,846	50 (23)		
	10.12	6,700	9,084	50 (23)		
	10.62	6,100	8,270	50 (23)		

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)	Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I*	Duty II	Duty III
MT-40-14X Hypoid 1650 lb-ft (2237 Nm)	3.25	23,000	31,181	68 (31)	80 (36)	110 (50)
	3.36	23,000	31,181	68 (31)	80 (36)	110 (50)
	3.42	23,000	31,181	68 (31)	80 (36)	110 (50)
	3.55	22,100	29,961	68 (31)	80 (36)	110 (50)
	3.70	22,100	29,961	68 (31)	80 (36)	110 (50)
	3.90	22,100	29,961	68 (31)	80 (36)	110 (50)
	4.11	22,100	29,961	68 (31)	80 (36)	110 (50)
	4.33	21,800	29,554	68 (31)	80 (36)	110 (50)
	4.63	20,400	27,656	68 (31)	80 (36)	105 (48)
	4.88	18,000	24,403	68 (31)	80 (36)	105 (48)
	5.29	16,600	22,505	68 (31)	80 (36)	100 (45)
	5.86	12,200	16,540	68 (31)	70 (32)	80 (36)
	6.14	11,800	15,997	68 (31)	70 (32)	70 (32)
	6.43	10,800	14,623	68 (31)	70 (32)	70 (32)
	6.83	10,200	13,828	68 (31)	70 (32)	70 (32)
	7.17	9,500	12,744	68 (31)	70 (32)	70 (32)
MT-40-14X Plus Hypoid 1850 lb-ft (2508 Nm)	3.25	23,000	31,181	70 (32)	80 (36)	110 (50)
	3.36	23,000	31,181	70 (32)	80 (36)	110 (50)
	3.42	23,000	31,181	70 (32)	80 (36)	110 (50)
	3.55	22,100	29,961	70 (32)	80 (36)	110 (50)
	3.70	22,100	29,961	70 (32)	80 (36)	110 (50)
	3.90	22,100	29,961	70 (32)	80 (36)	110 (50)
	4.11	22,100	29,961	70 (32)	80 (36)	110 (50)
	4.33	21,800	29,554	70 (32)	80 (36)	110 (50)
	4.63	20,400	27,656	70 (32)	80 (36)	105 (48)
	4.88	18,000	24,403	70 (32)	80 (36)	105 (48)
	5.29	16,600	22,505	70 (32)	80 (36)	100 (45)
MT-40-14X Amboid 1650 lb-ft (2237 Nm)	3.25	23,000	31,181	68 (31)	80 (36)	110 (50)
	3.36	23,000	31,181	68 (31)	80 (36)	110 (50)
	3.42	23,000	31,181	68 (31)	80 (36)	110 (50)
	3.55	22,100	29,961	68 (31)	80 (36)	110 (50)
	3.70	22,100	29,961	68 (31)	80 (36)	110 (50)
	3.90	22,100	29,961	68 (31)	80 (36)	110 (50)
	4.11	22,100	29,961	68 (31)	80 (36)	110 (50)

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)	Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I*	Duty II	Duty III
MT-40-14X Plus Amboid 1850 lb-ft (2508 Nm)	3.25	23,000	31,181	70 (32)	80 (36)	110 (50)
	3.36	23,000	31,181	70 (32)	80 (36)	110 (50)
	3.42	23,000	31,181	70 (32)	80 (36)	110 (50)
	3.55	22,100	29,961	70 (32)	80 (36)	110 (50)
	3.70	22,100	29,961	70 (32)	80 (36)	110 (50)
	3.90	22,100	29,961	70 (32)	80 (36)	110 (50)
	4.11	22,100	29,961	70 (32)	80 (36)	110 (50)
MT-44-14X 1850 lb-ft (2508 Nm)	3.55	22,100	29,963	72 (33)	Not Applicable	Not Applicable
	3.70	22,100	29,963	72 (33)		
	3.90	22,100	29,963	72 (33)		
	4.11	22,100	29,963	72 (33)		
	4.33	21,800	29,554	72 (33)		
	4.63	20,400	27,656	72 (33)		
	4.88	18,000	24,403	72 (33)		
	5.29	16,600	22,505	72 (33)		
	5.86	12,200	16,540	72 (33)		
	6.14	11,800	15,997	72 (33)		
RT-xx-160/164 2050 lb-ft (2779 Nm) **RZ-166 Tridem 2050 lb-ft (2779 Nm) See Note 3.**	3.07	30,000	40,674	100 (45)	145 (66)	164 (74)
	3.21	30,000	40,674	100 (45)	145 (66)	164 (74)
	3.42	30,000	40,674	100 (45)	145 (66)	164 (74)
	3.58	30,000	40,674	100 (45)	145 (66)	164 (74)
	3.73	30,000	40,674	100 (45)	145 (66)	164 (74)
	3.91	30,000	40,674	100 (45)	145 (66)	164 (74)
	4.10	30,000	40,674	100 (45)	145 (66)	164 (74)
	4.30	30,000	40,674	100 (45)	145 (66)	160 (73)
	4.56	30,000	40,674	100 (45)	145 (66)	160 (73)
	4.89	30,000	40,674	100 (45)	130 (59)	150 (68)
	5.38	26,200	35,522	100 (45)	130 (59)	140 (63.5)
	5.63	23,000	31,181	100 (45)	130 (59)	140 (63.5)
	6.14	20,400	27,656	100 (45)	120 (54.5)	130 (59)
	6.43	17,800	24,133	100 (45)	110 (50)	130 (59)
	6.83	17,800	24,133	100 (45)	100 (45)	130 (59)
	7.17	16,000	21,693	100 (45)	100 (45)	130 (59)
RT-xx-185 2050 lb-ft (2779 Nm) **RZ-188 Tridem 2050 lb-ft (2779 Nm) See Note 3.**	3.73	30,000	40,674	100 (45)	170 (77)	185 (84)
	4.30	30,000	40,674	100 (45)	170 (77)	185 (84)
	4.56	30,000	40,674	100 (45)	170 (77)	180 (81.5)
	4.89	30,000	40,674	100 (45)	155 (70)	180 (81.5)
	5.38	30,000	40,674	100 (45)	155 (70)	160 (73)
	6.14	24,000	32,539	100 (45)	154 (70)	155 (70)
	6.83	20,400	27,656	100 (45)	130 (59)	155 (70)
	7.17	18,000	24,947	100 (45)	120 (54.5)	155 (70)

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)	Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I*	Duty II	Duty III
RT-xx-380 2050 lb-ft (2779 Nm)	5.52	30,000	40,674	100 (45)	170 (77)	185 (84)
	6.07	30,000	40,674	100 (45)	170 (77)	185 (84)
	6.37	27,200	36,878	100 (45)	170 (77)	185 (84)
	6.75	26,200	35,522	100 (45)	160 (70)	170 (77)
	7.24	21,200	28,743	100 (45)	150 (68)	170 (77)
	7.83	20,400	27,656	100 (45)	140 (63.5)	170 (77)
	9.14	16,000	21,693	100 (45)	130 (59)	170 (77)
	10.12	13,400	18,168	100 (45)	110 (50)	140 (63.5)
	10.62	12,200	16,540	100 (45)	100 (45)	130 (59)

* Duty I, applies only to loaded weight of a single unit truck (no trailer loads included).

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GVW/GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. For Tridems, see Page 80 for available ratios, GAWR ratings and required tire SLR.
4. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

FIRE

Vocational Definition

- Fire is defined as vehicles used in fighting fires

Operating Conditions

- Variety of terrain conditions: light grade (0-8%), moderate grade (0-12%), severe grade (0-20%)
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces (on-road) and into sandy or muddy sites (off-road)
- Operation is 90% on-road and 10% off-road
- Duty cycle is typically defined as fully loaded (up to 100% GVW) round trip
- High horsepower engines typically used
- Annual Mileage: Low
- Start/Stop Cycle: Less than 3 miles

Vehicle Types

- Aerial Ladder Truck
- Aerial Platform
- Ambulance
- Pumper
- Tanker Truck

Vehicle Configuration	Approved	Not Approved
4X2 Straight trucks	X	
4X4 Straight trucks	X	
6X4 Straight trucks	X	
All wheel drive vehicles (See Section 4)		Contact Meritor
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
Single VRD (retarder)	X	
Multiple VRD (retarders)		X
Towed load		X
Maximum tire static loaded radius 20.5”	X	

Notes:

1. Unless otherwise authorized, ratings at wider track or utilizing wide base single tires require Meritor approval. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GVW	≤ 100% GVW	20%	On-Road > 90% / Off-Road < 10%

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)
		lb-ft	Nm	Duty I
MS-xx-13X 660 lb-ft (895 Nm)	3.90	8,500	11,524	MS-17-13X 18 (8.2) / MS-19-13X 19 (8.6)
	4.11	8,200	11,118	
	4.33	8,000	10,847	
	4.63	7,600	10,304	
	4.88	7,200	9,762	
	5.13	6,800	9,220	
	5.29	6,600	8,948	
	5.57	6,300	8,542	
	5.83	5,200	7,050	
	6.17	5,000	6,779	
	6.50	4,750	6,440	
MC/MS-xx-14X Hypoid 1200 lb-ft (1627 Nm)	3.08	11,500	15,592	MS-17-14X 29.5 (13.4) / MS-19-14X 31 (14) / MS-21-14X 42 (19) / MC-22-14X 42 (19)
	3.25	12,700	17,217	
	3.36	12,700	17,217	
	3.42	12,700	17,217	
	3.55	11,300	15,319	
	3.70	11,200	15,184	
	3.90	10,200	13,828	
	4.11	9,800	13,286	
	4.33	9,500	12,879	
	4.63	9,500	12,879	
	4.88	9,000	12,201	
	5.13	8,200	11,117	
	5.29	8,300	11,252	
	5.57	7,200	9,761	
	5.86	6,100	8,270	
	6.14	5,900	7,999	
	6.43	5,400	7,321	
	6.83	5,100	6,914	
	7.17	4,700	6,372	
RS-xx-160/161 1850 lb-ft (2508 Nm)	3.07	21,100	28,472	RS-23-160/161 44.5 (19.5) / RS-24-160 45.5 (20) / RS-25-160 48.5 (21)
	3.21	21,100	28,472	
	3.42	21,100	28,472	
	3.58	20,800	28,201	
	3.73	20,800	28,201	
	3.91	20,800	28,201	
	4.10	20,800	28,201	
	4.30	19,100	25,896	
	4.56	17,400	23,591	
	4.89	15,500	21,015	
	5.13	14,300	19,388	
	5.38	13,100	17,761	
	5.63	11,500	15,592	
	6.14	10,200	13,829	
	6.43	8,900	12,067	
	6.83	8,900	12,067	
	7.17	8,000	10,846	

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)
		lb-ft	Nm	Duty I
RS-xx-185/186 1850 lb-ft (2508 Nm)	3.42	23,000	31,183	RS-23-186 45.5 (20) RS-26-185 48.5 (21) RS-30-185 51 (23)
	3.58	22,100	29,963	
	3.73	22,100	29,963	
	4.30	20,300	25,896	
	4.56	19,500	27,523	
	4.89	15,800	21,422	
	5.13	16,900	22,913	
	5.38	15,200	20,608	
	5.63	12,900	17,490	
	5.86	14,200	19,252	
	6.14	12,000	16,270	
	6.83	10,200	13,829	
	7.17	9,200	12,473	
MT-40-14X Hypoid 1650 lb-ft (2237 Nm)	3.42	23,000	31,183	61.5 (28)
	3.55	22,100	29,963	61.5 (28)
	3.70	22,100	29,963	61.5 (28)
	3.90	22,100	29,963	61.5 (28)
	4.11	22,100	29,963	61.5 (28)
	4.33	21,800	29,556	61.5 (28)
	4.63	20,400	27,658	61.5 (28)
	4.88	18,000	24,404	61.5 (28)
	5.29	16,600	22,506	61.5 (28)
	5.86	12,200	16,540	61.5 (28)
	6.14	11,800	15,998	61.5 (28)
	6.43	10,800	14,643	61.5 (28)
	6.83	10,200	13,829	61.5 (28)
	7.17	9,400	12,745	61.5 (28)
MT-40-14X Plus Hypoid 1650 lb-ft (2237 Nm)	3.42	23,000	31,183	63.5 (29)
	3.55	22,100	29,963	63.5 (29)
	3.70	22,100	29,963	63.5 (29)
	3.90	22,100	29,963	63.5 (29)
	4.11	22,100	29,963	63.5 (29)
	4.33	21,800	29,556	63.5 (29)
	4.63	20,400	27,658	63.5 (29)
	4.88	18,000	24,404	63.5 (29)
	5.29	16,600	22,506	63.5 (29)
	5.86	12,200	16,540	63.5 (29)
	6.14	11,800	15,998	63.5 (29)
	6.43	10,800	14,643	63.5 (29)
MT-44-14X 1650 lb-ft (2237 Nm)	3.55	22,100	29,963	65.5 (30)
	3.70	22,100	29,963	65.5 (30)
	3.90	22,100	29,963	65.5 (30)
	4.11	22,100	29,963	65.5 (30)
	4.33	21,800	29,554	65.5 (30)
	4.63	20,400	27,656	65.5 (30)
	4.88	18,000	24,403	65.5 (30)
	5.29	16,600	22,505	65.5 (30)
	5.86	12,200	16,540	65.5 (30)
	6.14	11,800	15,998	65.5 (30)

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)
		lb-ft	Nm	Duty I
RT-xx-160/164 1850 lb-ft (2508 Nm)	3.07	30,000	40,674	RT-40-160 63.5 (29) RT-46-160/164 69.5 (31.5) RT-50-160 73.5 (33)
	3.21	30,000	40,674	
	3.42	30,000	40,674	
	3.58	30,000	40,674	
	3.73	30,000	40,674	
	3.91	30,000	40,674	
	4.10	30,000	40,674	
	4.30	30,000	40,674	
	4.56	30,000	40,674	
	4.89	30,000	40,674	
	5.38	26,200	35,522	
	5.63	23,000	31,183	
	6.14	20,400	27,658	
	6.43	17,800	24,133	
	6.83	17,800	24,133	
	7.17	16,000	21,693	
RT-xx-185 1850 lb-ft (2508 Nm)	3.73	30,000	40,674	RT-52-185 75.5 (34) RT-58-185 79.5 (36)
	4.30	30,000	40,674	
	4.56	30,000	40,674	
	4.89	30,000	40,674	
	5.38	30,000	40,674	
	6.14	24,000	32,539	
	6.83	20,400	27,658	
	7.17	18,400	24,947	

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GVW, input torque) may be approvable. Contact Meritor for possible approval.
3. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

FIRE

HEAVY HAUL

Vocational Definition

- Heavy haul is defined as the movement of heavy equipment and materials at legal maximums and special permit loadings
- High horsepower engines and auxiliary gear boxes are typically used in this vocation

Operating Conditions

- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces
- Operation is 100% on-road
- Duty cycle is typically defined as fully loaded (up to 100% GCW) going and empty (up to 40% GCW) return
- Start/Stop Cycle: Greater than 30 miles on average

Vehicle Types

- Equipment Hauling
- Flat Bed Trailer Haul
- Lowboy
- “Michigan Special” Steel Haul
- Steel Hauling

Vehicle Configuration	Approved	Not Approved
6X4 Tractors	X	
8X4 Tractors	X	
Michigan Specials	X	
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
Single VRD (retarder)	X	
Multiple VRD (retarders)		See Note 15 on Page 2
Maximum tire static loaded radius 23.4”	X	

Notes:

1. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.
3. The following GVW ratings are approved for straight trucks:

RT-16X/RZ-166	RT-185/RZ-188	RT-380
100,000 lb	100,000 lb	100,000 lb

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GCW	≤ 40% GCW	12%	Highway

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)
		lb-ft	Nm	Duty I
RT-xx-160/164 2050 lb-ft (2779 Nm) **RZ-166 Tridem 2050 lb-ft (2779 Nm) See Note 3.**	3.07	30,000	40,674	190 (86)
	3.21	30,000	40,674	190 (86)
	3.42	30,000	40,674	190 (86)
	3.58	30,000	40,674	190 (86)
	3.73	30,000	40,674	190 (86)
	3.91	30,000	40,674	190 (86)
	4.10	30,000	40,674	190 (86)
	4.30	30,000	40,674	180 (81.5)
	4.56	30,000	40,674	180 (81.5)
	4.89	30,000	40,674	170 (77)
	5.38	26,200	35,522	160 (73)
	5.63	23,000	31,181	160 (73)
	6.14	20,400	27,656	120 (54.5)
	6.43	17,800	24,133	110 (50)
	6.83	17,800	24,133	100 (45)
	7.17	16,000	21,693	100 (45)
RT-xx-185 2050 lb-ft (2779 Nm) **RZ-188 Tridem 2050 lb-ft (2779 Nm) See Note 3.**	3.73	30,000	40,674	225 (102)
	4.30	30,000	40,674	225 (102)
	4.56	30,000	40,674	225 (102)
	4.89	30,000	40,674	225 (102)
	5.38	30,000	40,674	210 (95)
	6.14	24,000	32,539	170 (77)
	6.83	20,400	27,656	140 (63.5)
	7.17	18,400	24,947	130 (59)
RT-xx-380 2050 lb-ft (2779 Nm)	5.52	30,000	40,674	250 (113)
	6.07	30,000	40,674	250 (113)
	6.37	27,200	36,878	250 (113)
	6.75	26,200	35,522	250 (113)
	7.24	21,200	28,743	240 (108.5)
	7.83	20,400	27,656	210 (95)
	9.14	16,000	21,693	170 (77)
	10.12	13,400	18,168	140 (63.5)
	10.62	12,200	16,540	130 (59)

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. For Tridems, see Page 80 for available ratios, GAWR ratings and required tire SLR.
4. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

INTERCITY COACH

Vocational Definition

- Intercity Coach is defined as vehicles used for the transport of people and sometimes light freight between cities and/or suburban areas

Operating Conditions

- Operation is 100% turnpike or on highway with moderate grades (0-8% maximum)
- Operation on road surfaces made of concrete or asphalt
- Duty cycle is typically defined as fully loaded (up to 100% GVW) round trip
- Annual Mileage: High
- Start/Stop Cycle: Greater than 30 miles

Vehicle Types

- Commuter Coach
- Cross Country Coach
- Tour Bus

Vehicle Configuration	Approved	Not Approved
6X2 Straight coach type with non-liftable tag or pusher auxiliary axles	X	
6X2 Straight coach type with liftable tag or pusher auxiliary axles		X
Single VRD (retarder)	X	
Multiple VRD (retarders)		X
Towed load		X
Maximum tire static loaded radius 20.3”	X	
Quiet Ride Gearing is standard for all Intercity Coach products	X	

Notes:

1. Ratings at wider track or utilizing wide base single tires require Meritor approval. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GVW	≤ 100% GVW	8%	Highway

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)
		lb-ft	Nm	Duty I
MC-xx-14X 1200 lb-ft (1627 Nm)	2.64	11,500	15,591	46 (21)
	3.08	11,500	15,591	46 (21)
	3.25	12,700	17,217	46 (21)
	3.36	12,700	17,217	46 (21)
	3.42	12,700	17,217	46 (21)
	3.55	11,300	15,319	46 (21)
	3.70	11,200	15,184	46 (21)
	3.90	10,200	13,828	46 (21)
	4.11	9,800	13,286	46 (21)
	4.33	9,500	12,879	46 (21)
	4.63	9,500	12,879	46 (21)
	4.88	9,000	12,201	46 (21)
	5.13	8,200	11,117	46 (21)
	5.29	8,300	11,252	46 (21)
	5.57	7,200	9,761	46 (21)
	5.86	6,100	8,270	46 (21)
	6.14	5,900	7,999	46 (21)
	6.43	5,400	7,321	46 (21)
	6.83	5,100	6,914	46 (21)
	7.17	4,700	6,372	46 (21)
RC-xx-160 2050 lb-ft (2779 Nm)	3.07	22,500	30,506	50 (23)
	3.21	22,500	30,506	50 (23)
	3.42	22,500	30,506	50 (23)
	3.58	20,800	28,201	50 (23)
	3.73	20,800	28,201	50 (23)
	3.91	20,800	28,201	50 (23)
	4.10	20,800	28,201	50 (23)
	4.30	20,800	28,201	50 (23)
	4.56	20,800	28,201	50 (23)
	4.89	16,400	22,235	50 (23)
	5.13	15,100	20,473	50 (23)
	5.38	13,800	18,710	50 (23)
	5.63	12,100	16,405	50 (23)
79163	4.56	12,948	17,555	Contact Meritor
	4.89	10,920	14,805	
	5.38	10,062	13,642	
	5.63	9,204	12,478	
	6.14	7,454	10,106	

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GVW, input torque) may be approvable. Contact Meritor for possible approval.

(16579)
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3 Recommended Applications/Vocational Ratings

LINEHAUL

Vocational Definition

- Linehaul is defined as the long distance hauling of food, goods and finished materials
- Not included are dump body trailers of any kind and/or hauling raw ferrous materials, minerals (except oil), aggregate, sand, gravel, stone, rocks, top soil, waste, or logs

Operating Conditions

- Road surfaces: Asphalt or concrete pavement
- Duty Cycle I is typically defined as fully loaded (up to 100% GCW) going and partially loaded (up to 60% GCW) return
- Duty Cycle II, III, and IV are typically defined as fully loaded (up to 100% GCW) round trip
- Grades: Up to a maximum of 12%
- **Category A** job sites/terminals/docks/transfer sites: Pavement, concrete, or maintained and hard-packed gravel.
- Annual mileage: Greater than 60,000 miles
- Start/Stop Cycle: Greater than 30 miles

Vehicle Types

- Doubles
- Flatbed
- General Freight
- Moving Van
- Pipe Haul
- Refrigerated Freight
- Triples

High CG Vehicle Types

- Auto Hauler
- Bulk Hauler
- Chip Hauler
- Grain Hauler
- Livestock Hauler
- Tanker

Vehicle Configuration	Approved	Not Approved
4X2 Straight trucks and tractors	X	
6X2 Straight trucks and tractors with non-liftable auxiliary axle	X	
6X4 Straight trucks and tractors	X	
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
Single VRD (retarder)	X	
Multiple VRD (retarders)		Contact Meritor
Maximum tire static loaded radius 21.1"	X	

Notes:

1. MT-40-14X with the 35.88” suspension mounting centers require 11.0 mm housing wall thickness or GAWR needs to be de-rated with 9.5 mm housing wall thickness.
2. It is required for vehicles operating in high center of gravity applications to use a minimum 11 mm housing wall thickness.
3. The conditions of all applicable notes starting on Page 2 must be met.
4. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
5. Chip Hauler only allowed in Linehaul Application when used with RT-XX-160/164 models.
6. The following GVW ratings are approved for straight trucks:

MS-14X	RS-16X/RS-18X	MT-14X/14X HE	MT-14X Plus	RT-16X/RZ-166
33,000 lb	50,000 lb	68,000 lb	70,000 lb	100,000 lb

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GCW	≤ 60% GCW	8%	Highway
II	≤ 100% GCW	> 60% GCW	8%	Highway
III	≤ 100% GCW	≤ 100% GCW	3.5%	Turnpike
IV	≤ 100% GCW	≤ 100% GCW	12%	Mountainous Highway

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)			
		lb-ft	Nm	Duty I	Duty II	Duty III	Duty IV
MS-xx-14X Hypoid 1200 lb-ft (1627 Nm)*	2.64	13,600	18,438	55 (25)	50 (23)	Contact Meritor	45 (20)
	3.08	12,800	17,353	55 (25)	50 (23)		45 (20)
	3.25	12,700	17,217	55 (25)	50 (23)		45 (20)
	3.36	12,700	17,217	55 (25)	50 (23)		45 (20)
	3.42	12,700	17,217	55 (25)	50 (23)		45 (20)
	3.55	11,300	15,319	55 (25)	50 (23)		45 (20)
	3.70	11,200	15,184	55 (25)	50 (23)		45 (20)
	3.90	10,200	13,828	55 (25)	50 (23)		45 (20)
	4.11	9,800	13,286	55 (25)	50 (23)		45 (20)
	4.33	9,500	12,879	55 (25)	50 (23)		45 (20)
	4.63	9,500	12,879	45 (20)	45 (20)		45 (20)
RS-xx-160/161 1850 lb-ft (2508 Nm)*	2.50	22,500	30,506	90 (41)	80 (36)	Contact Meritor	70 (32)
	2.67	22,500	30,506	90 (41)	80 (36)		70 (32)
	2.80	22,500	30,506	90 (41)	80 (36)		70 (32)
	2.93	22,500	30,506	90 (41)	80 (36)		70 (32)
	3.07	22,500	30,506	90 (41)	80 (36)		70 (32)
	3.21	22,500	30,506	90 (41)	80 (36)		70 (32)
	3.42	22,500	30,506	90 (41)	80 (36)		70 (32)
	3.58	20,800	28,201	90 (41)	80 (36)		70 (32)
	3.73	20,800	28,201	90 (41)	80 (36)		70 (32)
	3.91	20,800	28,201	90 (41)	80 (36)		70 (32)
	4.10	20,800	28,201	90 (41)	80 (36)		70 (32)
	4.30	20,800	28,201	90 (41)	80 (36)		70 (32)
	4.56	20,800	28,201	90 (41)	80 (36)		70 (32)
MS-23-17X HE 2050 lb-ft (2779 Nm)	2.06	24,000	32,600	120 (54.5)	110 (50)	130 (59)	Contact Meritor
	2.17	24,000	32,600	120 (54.5)	110 (50)	130 (59)	
	2.31	24,000	32,600	120 (54.5)	110 (50)	130 (59)	
	2.47	24,000	32,600	120 (54.5)	110 (50)	140 (63.5)	
	2.64	24,000	32,600	120 (54.5)	110 (50)	140 (63.5)	
	2.85	24,000	32,600	120 (54.5)	110 (50)	140 (63.5)	
	3.08	24,000	32,600	120 (54.5)	110 (50)	130 (59)	
	3.36	24,000	32,600	120 (54.5)	110 (50)	130 (59)	
RS-xx-185/186 1850 lb-ft (2508 Nm)*	3.42	25,000	33,895	125 (57)	110 (50)	140 (63.5)	90 (41)
	3.58	22,100	29,963	125 (57)	110 (50)	140 (63.5)	90 (41)
	3.73	22,100	29,963	125 (57)	110 (50)	140 (63.5)	90 (41)
	4.30	22,100	29,963	115 (52)	105 (48)	140 (63.5)	90 (41)
	4.56	22,100	29,963	115 (52)	100 (45)	140 (63.5)	90 (41)

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)			
		lb-ft	Nm	Duty I	Duty II	Duty III	Duty IV
MT-40-14X HE 1850 lb-ft (2508 Nm)	2.15	24,000	32,537	80 (36)	80 (36)	80 (36)	Not Applicable
	2.28	24,000	32,537	80 (36)	80 (36)	80 (36)	
	2.47	24,000	32,537	95 (43)	90 (41)	105 (47)	
	2.64	24,000	32,537	95 (43)	90 (41)	105 (47)	
	2.79	24,000	32,537	95 (43)	90 (41)	105 (47)	
	2.85	24,000	32,537	95 (43)	90 (41)	105 (47)	
	2.93	24,000	32,537	95 (43)	90 (41)	105 (47)	
	3.08	24,000	32,537	95 (43)	90 (41)	105 (47)	
	3.25	24,000	32,537	95 (43)	90 (41)	105 (47)	
	3.36	24,000	32,537	95 (43)	90 (41)	105 (47)	
	3.42	24,000	32,537	95 (43)	90 (41)	105 (47)	
	3.55	22,100	29,961	95 (43)	90 (41)	105 (47)	
	3.70	22,100	29,961	95 (43)	90 (41)	105 (47)	
	3.90	22,100	29,961	95 (43)	90 (41)	105 (47)	
MT-40-14X Hypoid 1650 lb-ft (2237 Nm)*	2.64	24,000	32,537	125 (57)	115 (52)	145 (66)	90 (41)
	2.79	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.08	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.25	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.36	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.42	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.55	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	3.70	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	3.90	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	4.11	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	4.33	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	4.63	22,100	29,963	125 (57)	105 (48)	125 (57)	90 (41)
	4.88	19,500	26,438	125 (57)	105 (48)	125 (57)	90 (41)
MT-40-14X Amboid 1650 lb-ft (2237 Nm)*	2.28	21,600	29,285	90 (41)	85 (38.5)	100 (45)	Contact Meritor
	2.47	24,000	32,537	125 (57)	115 (52)	145 (66)	90 (41)
	2.64	24,000	32,537	125 (57)	115 (52)	145 (66)	90 (41)
	2.79	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	2.85	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.08	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.25	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.36	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.42	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.55	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	3.70	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	3.90	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	4.11	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)			
		lb-ft	Nm	Duty I	Duty II	Duty III	Duty IV
MT-40-14X Hypoid 1750 lb-ft (2373 Nm)*	2.64	24,000	32,540	115 (52)	110 (50)	130 (59)	80 (36)
	2.79	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.08	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.25	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.36	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.42	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.55	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.70	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.90	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
	4.11	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
	4.33	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
	4.63	22,100	29,964	115 (52)	100 (45)	120 (54.5)	80 (36)
	4.88	19,500	26,438	115 (52)	100 (45)	120 (54.5)	80 (36)
MT-40-14X Amboid 1750 lb-ft (2373 Nm)*	2.28	21,600	29,286	85 (38.5)	80 (36)	95 (43)	X
	2.47	24,000	32,540	115 (52)	110 (50)	130 (59)	80 (36)
	2.64	24,000	32,540	115 (52)	110 (50)	130 (59)	80 (36)
	2.79	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	2.85	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.08	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.25	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.36	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.42	24,000	32,540	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.55	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.70	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
	3.90	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
	4.11	22,100	29,964	115 (52)	105.5 (48)	130 (59)	80 (36)
MT-40-14X Hypoid 1850 lb-ft (2508 Nm)*	2.64	24,000	32,537	110 (50)	105.5 (48)	115 (52)	Not Applicable
	2.79	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.08	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.25	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.36	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.42	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.55	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
	3.70	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
	3.90	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
	4.11	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
	4.33	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
	4.63	22,100	29,963	110 (50)	100 (45)	115 (52)	
	4.88	19,500	26,438	110 (50)	100 (45)	115 (52)	

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)			
		lb-ft	Nm	Duty I	Duty II	Duty III	Duty IV
MT-40-14X Amboid 1850 lb-ft (2508 Nm)*	2.28	21,600	29,285	85 (38.5)	80 (36)	90 (41)	Not Applicable
	2.47	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	2.64	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	2.79	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	2.85	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.08	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.25	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.36	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.42	24,000	32,537	110 (50)	105.5 (48)	115 (52)	
	3.55	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
	3.70	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
	3.90	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
	4.11	22,100	29,963	110 (50)	105.5 (48)	115 (52)	
MT-40-14X Hypoid 2050 lb-ft (2779 Nm)*	2.64	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	Not Applicable
	2.79	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.08	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.25	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.36	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.42	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.55	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	3.70	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	3.90	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	4.11	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	4.33	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	4.63	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	4.88	19,500	26,438	85 (38.5)	80 (36)	85 (38.5)	
MT-40-14X Amboid 2050 lb-ft (2779 Nm)*	2.28	21,600	29,285	80 (36)	Not Applicable	80 (36)	Not Applicable
	2.47	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	2.64	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	2.79	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	2.85	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.08	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.25	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.36	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.42	24,000	32,537	85 (38.5)	80 (36)	85 (38.5)	
	3.55	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	3.70	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	3.90	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	
	4.11	22,100	29,963	85 (38.5)	80 (36)	85 (38.5)	

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)			
		lb-ft	Nm	Duty I	Duty II	Duty III	Duty IV
MT-40-14X Plus Hypoid 1850 lb-ft (2508 Nm) 2050 lb-ft multi (2779 Nm)*	2.64	24,000	32,537	130 (59)	115 (52)	145 (66)	90 (41)
	3.08	24,000	32,537	130 (59)	110 (50)	145 (66)	90 (41)
	3.25	24,000	32,537	130 (59)	110 (50)	145 (66)	90 (41)
	3.36	24,000	32,537	130 (59)	110 (50)	145 (66)	90 (41)
	3.42	24,000	32,537	130 (59)	110 (50)	145 (66)	90 (41)
	3.55	22,100	29,963	130 (59)	110 (50)	145 (66)	90 (41)
	3.70	22,100	29,963	130 (59)	110 (50)	145 (66)	90 (41)
	3.90	22,100	29,963	130 (59)	110 (50)	145 (66)	90 (41)
	4.11	22,100	29,963	130 (59)	110 (50)	145 (66)	90 (41)
	4.33	22,100	29,963	130 (59)	110 (50)	145 (66)	90 (41)
	4.63	22,100	29,963	130 (59)	105 (48)	125 (57)	90 (41)
	4.88	19,500	26,438	130 (59)	105 (48)	125 (57)	90 (41)
MT-40-14X Plus Amboid 1850 lb-ft (2508 Nm) 2050 lb-ft multi (2779 Nm)*	2.64	24,000	32,537	125 (57)	115 (52)	145 (66)	90 (41)
	2.79	24,000	32,537	125 (57)	115 (52)	145 (66)	90 (41)
	2.85	24,000	32,537	125 (57)	115 (52)	145 (66)	90 (41)
	3.08	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.25	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.36	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.42	24,000	32,537	125 (57)	110 (50)	145 (66)	90 (41)
	3.55	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	3.70	22,100	29,963	125 (57)	110 (50)	145 (66)	90 (41)
	3.90	22,100	29,963	125 (57)	105 (48)	145 (66)	90 (41)
	4.11	22,100	29,963	125 (57)	105 (48)	145 (66)	90 (41)
RT-xx-160/164 2050 lb-ft (2779 Nm)*	3.07	33,300	45,148	160 (73)	150 (68)	185 (84)	120 (54.5)
	3.21	33,300	45,148	160 (73)	150 (68)	185 (84)	120 (54.5)
	3.42	33,300	45,148	160 (73)	150 (68)	185 (84)	120 (54.5)
RZ-xx-166 2050 lb-ft (2779 Nm)	3.58	33,300	45,148	160 (73)	150 (68)	185 (84)	120 (54.5)
	3.73	33,300	45,148	160 (73)	150 (68)	185 (84)	120 (54.5)
	3.91	33,300	45,148	160 (73)	150 (68)	185 (84)	120 (54.5)
	4.10	33,300	45,148	160 (73)	150 (68)	185 (84)	120 (54.5)
	4.30	33,300	45,148	160 (73)	150 (68)	185 (84)	120 (54.5)
	4.56	30,200	40,945	160 (73)	150 (68)	185 (84)	120 (54.5)

3 Recommended Applications/Vocational Ratings

FUELite™ 6X2 Tandem – Axle Rating 40K GAWR Max

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
MA-40-165 Hypoid 1850 lb-ft (2508 Nm)*	2.50	22,500	30,506	90 (41)	80 (36)	Contact Meritor
	2.67	22,500	30,506	90 (41)	80 (36)	
	2.80	22,500	30,506	90 (41)	80 (36)	
	2.93	22,500	30,506	90 (41)	80 (36)	
	3.07	22,500	30,506	90 (41)	80 (36)	
	3.21	22,500	30,506	90 (41)	80 (36)	
	3.42	22,500	30,506	90 (41)	80 (36)	
	3.58	20,800	28,201	90 (41)	80 (36)	
	3.73	20,800	28,201	90 (41)	80 (36)	
	3.91	20,800	28,201	90 (41)	80 (36)	
	4.10	20,800	28,201	90 (41)	80 (36)	

FUELite+™ 6X2 Tandem – Axle Rating 40K GAWR Max

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
MA-40-17X HE Hypoid 2050 lb-ft (2779 Nm)	2.06	24,000	32,600	120 (54.5)	110 (50)	130 (59)
	2.17	24,000	32,600	120 (54.5)	110 (50)	130 (59)
	2.31	24,000	32,600	120 (54.5)	110 (50)	130 (59)
	2.47	24,000	32,600	120 (54.5)	110 (50)	140 (63.5)
	2.64	24,000	32,600	120 (54.5)	110 (50)	140 (63.5)
	2.85	24,000	32,600	120 (54.5)	110 (50)	140 (63.5)
	3.08	24,000	32,600	120 (54.5)	110 (50)	130 (59)
	3.36	24,000	32,600	120 (54.5)	110 (50)	130 (59)

* These axle models are approved for Category B jobsite conditions.

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. For Tridems, see Page 80 for available ratios, GAWR ratings and required tire SLR.
4. DCDL not available for rear Amboid carriers.
5. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

LOGGING

Vocational Definition

- Logging is defined as the movement of logs, chips, and pulp between work sites and/or mills
- High horsepower engines are typically used in this vocation

Operating Conditions

- Duty I: Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces
- Duty II: Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces (on-road) for 90% of the time and into sandy or muddy job sites (off-road) for 10% of the time
- Duty cycles are typically defined as fully loaded (up to 100% GCW) going and empty (up to 40% GCW) return
- Start/Stop Cycle: Greater than 3 miles on average

Vehicle Types

- Chip Hauler
- Log Hauling
- “Michigan Special” Log Haul
- Tractor/Trailer with Jeeps
- Tractor with Pole Trailer

Vehicle Configuration	Approved	Not Approved
6X4 Tractors	X	
Michigan Specials	X	
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
Single VRD (retarder)	X	
Multiple VRD (retarders)		See Note 15 on Page 2
Maximum tire static loaded radius 23.4”	X	

Notes:

1. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.
3. The following GVW ratings are approved for straight trucks:

MT-14X	MT-14X Plus	RT-16X/RZ-166	RT-185/RZ-188	RT-380
68,000 lb	70,000 lb	100,000 lb	100,000 lb	100,000 lb

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GCW	≤ 40% GCW	8%	Light Grades - On-Road >90% / Off-Road <10%
II	≤ 100% GCW	≤ 40% GCW	20%	Steep Grades - On-Road >90% / Off-Road <10%

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I	Duty II
MT-40-14X Hypoid 1650 lb-ft (2237 Nm) **MT-40-14X Plus Hypoid 1850 lb-ft (2508 Nm)**	3.36	23,000	31,181	100 (45)	Not Applicable
	3.42	23,000	31,181	100 (45)	
	3.55	22,100	29,961	100 (45)	
	3.70	22,100	29,961	100 (45)	
	3.90	22,100	29,961	100 (45)	
	4.11	22,100	29,961	100 (45)	
	4.33	21,800	29,554	100 (45)	
	4.63	20,400	27,656	100 (45)	
	4.88	18,000	24,403	90 (41)	
	5.29	16,600	22,505	90 (41)	
	5.86	12,200	16,540	70 (32)	
MT-40-14X Amboid 1650 lb-ft (2237 Nm) **MT-40-14X Plus Amboid 1850 lb-ft (2508 Nm)**	3.25	23,000	31,181	100 (45)	Not Applicable
	3.36	23,000	31,181	100 (45)	
	3.42	23,000	31,181	100 (45)	
	3.55	22,100	29,961	100 (45)	
	3.70	22,100	29,961	100 (45)	
	3.90	22,100	29,961	100 (45)	
	4.11	22,100	29,961	100 (45)	

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I	Duty II
RT-xx-160/164 2050 lb-ft (2779 Nm) See Note 4.	3.07	30,000	40,674	164 (74)	140 (63.5)
	3.21	30,000	40,674	164 (74)	140 (63.5)
	3.42	30,000	40,674	164 (74)	140 (63.5)
	3.58	30,000	40,674	164 (74)	140 (63.5)
	3.73	30,000	40,674	164 (74)	140 (63.5)
RZ-166 Tridem 2050 lb-ft (2779 Nm) See Note 3.	3.91	30,000	40,674	164 (74)	130 (59)
	4.10	30,000	40,674	164 (74)	130 (59)
	4.30	30,000	40,674	160 (73)	130 (59)
	4.56	30,000	40,674	160 (73)	130 (59)
	4.89	30,000	40,674	130 (59)	120 (54.5)
	5.38	26,200	35,522	130 (59)	110 (50)
	5.63	23,000	31,181	130 (59)	110 (50)
	6.14	20,400	27,656	100 (45)	90 (41)
	6.43	17,800	24,133	90 (41)	90 (41)
	6.83	17,800	24,133	80 (36)	80 (36)
	7.17	16,000	21,693	80 (36)	70 (32)
RT-xx-185 2050 lb-ft (2779 Nm)	3.73	30,000	40,674	180 (81.5)	164 (74)
	4.30	30,000	40,674	170 (77)	150 (68)
	4.56	30,000	40,674	170 (77)	150 (68)
	4.89	30,000	40,674	164 (74)	150 (68)
RZ-188 Tridem 2050 lb-ft (2779 Nm) See Note 3.	5.38	30,000	40,674	164 (74)	150 (68)
	6.14	24,000	32,539	140 (63.5)	130 (59)
	6.83	20,400	27,656	120 (54.5)	110 (50)
	7.17	18,400	24,947	110 (50)	100 (45)
RT-xx-380 2050 lb-ft (2779 Nm)	5.52	30,000	40,674	164 (74)	164 (74)
	6.07	30,000	40,674	164 (74)	164 (74)
	6.37	27,200	36,878	160 (73)	160 (73)
	6.75	26,200	35,522	160 (73)	160 (73)
	7.24	21,200	28,743	150 (68)	150 (68)
	7.83	20,400	27,656	150 (68)	150 (68)
	9.14	16,000	21,693	140 (63.5)	140 (63.5)
	10.12	13,400	18,168	100 (45)	100 (45)
	10.62	12,200	16,540	100 (45)	100 (45)

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. For Tridems, see Page 80 for available ratios, GAWR ratings and required tire SLR.
4. Canadian loggers require RT-46-164.
5. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

MINING

Vocational Definition

- Mining is defined as the movement of rock, ore, gravel, and minerals between mining sites, processing, and delivery sites
- Tractor/Trailer construction vehicles are also included in this vocation
- High horsepower engines are typically used in this vocation

Operating Conditions

- Variety of terrain conditions: light grade (0-8%), moderate grade (0-12%), severe grade (0-20%)
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces (on-road) for 95% of the time and off-road for 5% of the time
- Duty cycles are typically defined as fully loaded (up to 100% GCW) going and empty (up to 40% GCW) return
- Start/Stop Cycle: 3-30 miles

Vehicle Types

- Bottom Dump Trailer Combination
- Hopper Trailer Combinations
- “Michigan Special” Gravel Trains
- Semi-End Dump
- Transfer Dump

Vehicle Configuration	Approved	Not Approved
6X4, 8X4, 10X4 tractors and trucks with full trailers	X	
Michigan Specials	X	
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
Downgrades greater than 40% of loaded distance may require de-rating		
Single VRD (retarder)	X	
Multiple VRD (retarders)		See Note 15 on Page 2
Maximum tire static loaded radius 23.4”	X	

Notes:

1. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.
3. The following GVW ratings are approved for straight trucks:

MT-14X	MT-14X Plus	RT-16X/RZ-166	RT-185/RZ-188	RT-380
68,000 lb	70,000 lb	100,000 lb	100,000 lb	100,000 lb

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I*	≤ 100% GCW	≤ 40% GCW	12%	Moderate Grades - On-Road >95% / Off-Road <5%
II**	≤ 100% GCW	≤ 40% GCW	20%	Steep Grades - On-Road >95% / Off-Road <5%

*Duty I only applies to USA, Canada and Mexico except for the states of KY, WV, VA, and TN.
**Duty II applies to the states of KY, WV, VA, TN, and other severe mining locations.

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I	Duty II
MT-40-14X Hypoid 1650 lb-ft (2237 Nm) **MT-40-14X Plus Hypoid 1850 lb-ft (2508 Nm)**	3.25	23,000	31,181	80 (36)	Not Applicable
	3.36	23,000	31,181	80 (36)	
	3.42	23,000	31,181	80 (36)	
	3.55	22,100	29,961	80 (36)	
	3.70	22,100	29,961	80 (36)	
	3.90	22,100	29,961	80 (36)	
	4.11	22,100	29,961	80 (36)	
	4.33	21,800	29,554	80 (36)	
	4.63	20,400	27,656	80 (36)	
	4.88	18,000	24,403	80 (36)	
	5.29	16,600	22,505	80 (36)	
	5.86	12,200	16,540	70 (32)	
	6.14	11,800	15,997	70 (32)	
	6.43	10,800	14,642	70 (32)	
	6.83	10,200	13,828	70 (32)	
	7.17	9,400	12,744	70 (32)	
RT-xx-160/164 2050 lb-ft (2779 Nm) **RZ-166 Tridem 2050 lb-ft (2779 Nm) See Note 3.**	3.07	30,000	40,674	164 (74)	110 (50)
	3.21	30,000	40,674	164 (74)	110 (50)
	3.42	30,000	40,674	164 (74)	110 (50)
	3.58	30,000	40,674	164 (74)	110 (50)
	3.73	30,000	40,674	164 (74)	110 (50)
	3.91	30,000	40,674	164 (74)	110 (50)
	4.10	30,000	40,674	164 (74)	110 (50)
	4.30	30,000	40,674	160 (73)	110 (50)
	4.56	30,000	40,674	160 (73)	110 (50)
	4.89	30,000	40,674	150 (68)	100 (45)
	5.38	26,200	35,522	140 (63.5)	100 (45)
	5.63	23,000	31,181	140 (63.5)	100 (45)
	6.14	20,400	27,656	120 (54.5)	100 (45)
	6.43	17,800	24,133	110 (50)	100 (45)
	6.83	17,800	24,133	100 (45)	100 (45)
	7.17	16,000	21,693	100 (45)	100 (45)
RT-xx-185 2050 lb-ft (2779 Nm) **RZ-188 Tridem 2050 lb-ft (2779 Nm) See Note 3.**	3.73	30,000	40,674	170 (77)	135 (61)
	4.30	30,000	40,674	170 (77)	135 (61)
	4.56	30,000	40,674	170 (77)	135 (61)
	4.89	30,000	40,674	155 (70)	120 (54.5)
	5.38	30,000	40,674	155 (70)	120 (54.5)
	6.14	24,000	32,539	155 (70)	120 (54.5)
	6.83	20,400	27,656	155 (70)	120 (54.5)
	7.17	18,400	24,947	155 (70)	120 (54.5)

MINING

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I	Duty II
RT-xx-380 2050 lb-ft (2779 Nm)	5.52	27,200	36,878	185 (84)	145 (66)
	6.07	27,200	36,878	185 (84)	145 (66)
	6.37	27,200	36,878	185 (84)	145 (66)
	6.75	26,200	35,522	170 (77)	145 (66)
	7.24	21,200	28,743	170 (77)	135 (61)
	7.83	20,400	27,656	170 (77)	135 (61)
	9.14	16,000	21,693	170 (77)	135 (61)
	10.12	13,400	18,168	140 (63.5)	100 (45)
	10.62	12,200	16,540	130 (59)	100 (45)

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. For Tridems, see Page 80 for available ratios, GAWR ratings and required tire SLR.
4. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

MOTORHOME/RV

Vocational Definition

- Motorhome/RV is defined as recreational vehicles designed for transporting personal belongings

Operating Conditions

- On Highway – Well maintained major highways of concrete or asphalt construction. Operation is subject to legal weight and dimensional limitations (permits included) with maximum positive or negative grades up to 8%
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces
- Operation is 100% on-road
- Duty cycle is typically defined as fully loaded (up to 100% GVW/GCW) round trip
- Annual Mileage: Moderate
- Start/Stop Cycle: Greater than 30 miles

Vehicle Types

- Integral Coach
- Recreational Vehicle

Vehicle Configuration	Approved	Not Approved
4X2 Straight coach type	X	
6X2 Straight coach type with non-liftable tag or pusher auxiliary axles	X	
6X2 Straight coach type with liftable tag or pusher auxiliary axles		X
Tandems		X
Single VRD (retarder)	X	
Multiple VRD (retarders)		X
Reasonable towed load (automobile, boat, etc.)	X	
“Quiet ride” gearing is recommended to prevent gear noise	X	
Maximum tire static loaded radius 21.1”	X	

Notes:

1. Unless otherwise authorized, ratings at wider track or utilizing wide base single tires require Meritor approval. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GVW	≤ 100% GVW	8%	Motorhome/RV Only - Highway and Local Roads
II	≤ 100% GCW	≤ 100% GCW	8%	Motorhome/RV + Trailer - Highway and Local Roads

3 Recommended Applications/Vocational Ratings

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)	Maximum GCW lb (kg) (1000)
		lb-ft	Nm	Duty I*	Duty II
MS-xx-13X 660 lb-ft (895 Nm)	3.90	8,500	11,524	40 (18)	
	4.11	8,200	11,118	40 (18)	
	4.33	8,000	10,847	40 (18)	
	4.63	7,600	10,304	40 (18)	
	4.88	7,200	9,762	40 (18)	
	5.13	6,800	9,220	40 (18)	Contact Meritor
	5.29	6,600	8,948	40 (18)	
	5.57	6,300	8,542	40 (18)	
	5.83	5,200	7,050	35 (16)	
	6.17	5,000	6,779	35 (16)	
	6.50	4,750	6,440	35 (16)	
MC/MS-xx-14X Hypoid 1200 lb-ft (1627 Nm)	2.64	13,600	18,439	46 (21)	55 (25)
	3.08	12,800	17,354	46 (21)	55 (25)
	3.25	12,700	17,217	46 (21)	55 (25)
	3.36	12,700	17,217	46 (21)	55 (25)
	3.42	12,700	17,217	46 (21)	55 (25)
	3.55	11,300	15,319	46 (21)	55 (25)
	3.70	11,200	15,184	46 (21)	55 (25)
	3.90	10,200	13,828	46 (21)	55 (25)
	4.11	9,800	13,286	46 (21)	55 (25)
	4.33	9,500	12,879	46 (21)	55 (25)
	4.63	9,500	12,879	46 (21)	55 (25)
	4.88	9,500	12,879	46 (21)	55 (25)
	5.13	8,600	11,660	46 (21)	55 (25)
	5.29	8,800	11,931	46 (21)	55 (25)
	5.57	7,600	10,304	46 (21)	55 (25)
	5.86	6,500	8,813	46 (21)	
	6.14	6,200	8,406	46 (21)	
	6.43	5,700	7,728	46 (21)	Contact Meritor
	6.83	5,400	7,321	46 (21)	
	7.17	5,000	6,779	46 (21)	

*Duty I, applies only to loaded weight of the single unit vehicle (no trailer loads included).

Axle Model Gross Engine Torque		Input Torque		Maximum GVW lb (kg) (1000)	Maximum GCW lb (kg) (1000)
	Ratios	lb-ft	Nm	Duty I*	Duty II
RC/RS-xx-160/161 1850 lb-ft (2508 Nm)	3.07	22,500	30,506	50 (23)	80 (36)
	3.21	22,500	30,506	50 (23)	80 (36)
	3.42	22,500	30,506	50 (23)	80 (36)
	3.58	20,800	28,201	50 (23)	80 (36)
	3.73	20,800	28,201	50 (23)	80 (36)
	3.91	20,800	28,201	50 (23)	80 (36)
	4.10	20,800	28,201	50 (23)	80 (36)
	4.30	20,800	28,201	50 (23)	80 (36)
	4.56	20,800	28,201	50 (23)	80 (36)
	4.89	16,400	22,235	50 (23)	80 (36)
	5.13	15,100	20,473	50 (23)	80 (36)
	5.38	13,800	18,710	50 (23)	80 (36)
	5.63	12,100	16,405	50 (23)	80 (36)
	6.14	10,700	14,507	50 (23)	80 (36)
	6.43	9,400	12,745	50 (23)	70 (32)
	6.83	9,400	12,745	50 (23)	70 (32)
	7.17	8,500	11,524	50 (23)	65 (29)

*Duty I, applies only to loaded weight of the single unit vehicle (no trailer loads included).

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GVW, input torque) may be approvable. Contact Meritor for possible approval.
3. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

OIL FIELD

Vocational Definition

- Oil Field (Geological Exploration) is defined as the movement of production related items, by-products of production, well output, well supplies, and tools
- High horsepower engines typically used in this vocation

Operating Conditions

- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces
- Duty Cycle I is severe service with up to 100% job site (off-road) usage. It is typically defined as fully loaded (up to 100% GCW) going and empty (up to 40% GCW) return
- Duty Cycle II is light service with up to 25% job site (off-road) usage. It is typically defined as fully loaded (up to 100% GCW) round trip
- Start/Stop Cycle:
  - Duty I: Less than 3 miles on average
  - Duty II: Greater than 3 miles on average

Vehicle Types

- Cementing Vehicle
- Demolition
- Drill Rig
- Fracturing Truck
- Geophysical Exploration
- Rigging Truck
- Tanker
- Winch Truck

Vehicle Configuration	Approved	Not Approved
6X4 long wheelbase straight trucks with large flatbeds and winches	X	
6X6 long wheelbase straight trucks with large flatbeds and winches	X	
6X4, 6X6 long wheelbase straight trucks or semi trailer combinations with permanently mounted equipment	X	
Mobile laboratory vehicles used for geophysical exploration	X	
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
All wheel drive vehicles (see Section 4)		Contact Meritor
Single VRD (retarder)	X	
Multiple VRD (retarders)		See Note 15 on Page 2
Maximum tire static loaded radius 23.4”	X	

Notes:

1. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.
3. The following GVW ratings are approved for straight trucks:

MT-14X	MT-14X Plus	RT-16X/RZ-166	RT-185/RZ-188	RT-380
68,000 lb	70,000 lb	100,000 lb	100,000 lb	100,000 lb

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Maximum Usage at Job Site	Additional Notes
I	≤ 100% GCW	≤ 40% GCW	12%	100%	Off-Road up to 100%
II	≤ 100% GCW	≤ 100% GCW	12%	25%	On-Road >75% / Off-Road <25%

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I	Duty II
MT-40-14X Hypoid 1650 lb-ft (2237 Nm) **MT-40-14X Plus Hypoid 1850 lb-ft (2508 Nm)**	3.36	23,000	31,181	Not Applicable	80 (36)
	3.42	23,000	31,181		80 (36)
	3.55	22,100	29,961		80 (36)
	3.70	22,100	29,961		80 (36)
	3.90	22,100	29,961		80 (36)
	4.11	22,100	29,961		80 (36)
	4.33	21,800	29,554		80 (36)
	4.63	20,400	27,656		80 (36)
	4.88	18,000	24,403		80 (36)
	5.29	16,600	22,505		80 (36)
	5.86	12,200	16,540		80 (36)
MT-40-14X Amboid 1650 lb-ft (2237 Nm) **MT-40-14X Plus Amboid 1850 lb-ft (2508 Nm)**	3.36	23,000	31,181	Not Applicable	80 (36)
	3.42	23,000	31,181		80 (36)
	3.55	22,100	29,961		80 (36)
	3.70	22,100	29,961		80 (36)
	3.90	22,100	29,961		80 (36)
	4.11	22,100	29,961		80 (36)
RT-xx-160/164 2050 lb-ft (2779 Nm) **RZ-166 Tridem 2050 lb-ft (2779 Nm) See Note 3.**	3.07	30,000	40,674	100 (45)	120 (54.5)
	3.21	30,000	40,674	100 (45)	120 (54.5)
	3.42	30,000	40,674	100 (45)	120 (54.5)
	3.58	30,000	40,674	100 (45)	120 (54.5)
	3.73	30,000	40,674	100 (45)	120 (54.5)
	3.91	30,000	40,674	100 (45)	120 (54.5)
	4.10	30,000	40,674	100 (45)	120 (54.5)
	4.30	30,000	40,674	100 (45)	120 (54.5)
	4.56	30,000	40,674	100 (45)	120 (54.5)
	4.89	30,000	40,674	100 (45)	120 (54.5)
	5.38	26,200	35,522	100 (45)	120 (54.5)
	5.63	23,000	31,181	100 (45)	120 (54.5)
	6.14	20,400	27,656	100 (45)	120 (54.5)
	6.43	17,800	24,133	100 (45)	120 (54.5)
	6.83	17,800	24,133	100 (45)	120 (54.5)
	7.17	16,000	21,693	100 (45)	120 (54.5)
RT-xx-185 2050 lb-ft (2779 Nm) **RZ-188 Tridem 2050 lb-ft (2779 Nm) See Note 3.**	3.73	30,000	40,674	100 (45)	140 (63.5)
	4.30	30,000	40,674	100 (45)	140 (63.5)
	4.56	30,000	40,674	100 (45)	140 (63.5)
	4.89	30,000	40,674	100 (45)	140 (63.5)
	5.38	30,000	40,674	100 (45)	140 (63.5)
	6.14	24,000	32,539	100 (45)	140 (63.5)
	6.83	20,400	27,656	100 (45)	140 (63.5)
	7.17	18,400	24,947	100 (45)	140 (63.5)

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GCW lb (kg) (1000)	
		lb-ft	Nm	Duty I	Duty II
RT-xx-380 2050 lb-ft (2779 Nm)	5.52	27,200	36,878	100 (45)	160 (73)
	6.07	27,200	36,878	100 (45)	160 (73)
	6.37	27,200	36,878	100 (45)	160 (73)
	6.75	26,200	35,522	100 (45)	160 (73)
	7.24	21,200	28,743	100 (45)	160 (73)
	7.83	20,400	27,656	100 (45)	160 (73)
	9.14	16,000	21,693	100 (45)	160 (73)
	10.12	13,400	18,168	100 (45)	160 (73)
	10.62	12,200	16,540	100 (45)	160 (73)

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. For Tridems, see Page 80 for available ratios, GAWR ratings and required tire SLR.
4. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

REFUSE

Vocational Definition

- Refuse is defined by the following subgroups:
  - Residential Refuse/Recycle Pickup
    - Door-to-door pickup of waste material and delivery to landfill site, transfer station or recycling plant
    - Commercial/Industrial Pickup
      - Pickup of waste material from commercial and industrial establishments and delivery to processing centers
    - Transfer/Relocation
      - Loading at the transfer station for delivery to landfill site, recycling plant, or other processing center

Operating Conditions

- Residential Refuse/Recycle Pickup and Transfer/Relocation: On-road 90% of the time and off-road for 10% of the time
- Commercial/Industrial Pickup: On-road 95% of the time and off-road for 5% of the time
- On-road operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces
- Duty Cycle I is typically defined as empty (up to 50% GVW) going and fully loaded (up to 100% GVW) return
- Duty Cycle II is typically defined as fully loaded (up to 100% GCW) going and empty (up to 50% GCW) return
- Off-road operation at transfer stations, recycling plants, or landfill sites
- Start/Stop Cycle:
  - Residential Refuse/Recycle Pickup: Up to 15 per mile
  - Commercial/Industrial Pickup: 1-3 miles
  - Transfer/Relocation: Greater than 10 miles

Vehicle Types

- Commercial Pick-Up
- Front Loader
- Hooklift
- Liquid Waste Hauler
- "Michigan Special" Waste Vehicle
- Rear Loader
- Recycling Truck
- Residential Pick-Up
- Roll-Off
- Scrap Truck
- Sewer/Septic Vacuum
- Side Loader
- Transfer Vehicle

Vehicle Configuration	Approved	Not Approved
Residential 4X2 and 6X4 straight trucks with rear/side loader packer body or recycle bin body	X	
Commercial 6X4 straight truck with front end load packer body	X	
Transfer/Relocation 6X4 tractor with semi-trailer compactor body or roll-off gondola bin, 6X4 tractor and truck with full trailers, 6X4 straight truck with roll-off gondola bin	X	
Michigan Special	X	
Configurations utilizing liftable auxiliary axle(s)		Contact Meritor
Single VRD (retarder)	X	
Multiple VRD (retarders)		See Note 15 on Page 2
Maximum tire static loaded radius 23.4"	X	

Notes:

1. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.

3 Recommended Applications/Vocational Ratings

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I (Residential/Commercial)	≤ 50% GVW	≤ 100% GVW	20%	On-Road >95% / Off-Road <5%
II (Transfer)	≤ 100% GCW	≤ 50% GCW	8%	On-Road >90% / Off-Road <10%

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)
		lb-ft	Nm	Duty I*
RS-xx-160/161 1850 lb-ft (2508 Nm)	3.07	18,000	24,404	RS-21-160 33 (15)
	3.21	17,500	23,727	
	3.42	18,000	24,404	
	3.58	16,200	21,964	
	3.73	16,400	22,235	
	3.91	15,000	20,337	
	4.10	14,600	19,795	
	4.30	13,300	18,032	RS-23-160/161 43 (19.5)
	4.56	12,100	16,405	
	4.89	10,800	14,643	
	5.13	10,000	13,558	
	5.38	9,100	12,338	
	5.63	8,000	10,846	
	6.14	7,100	9,626	
	6.43	6,200	8,406	RS-25-160 45 (20.4)
	6.83	6,200	8,406	
	7.17	5,600	7,592	
RS-xx-185/186 1850 lb-ft (2508 Nm)	3.42	20,000	27,166	RS-23-186 43 (19.5)
	3.58	17,300	23,455	
	3.73	17,700	23,998	
	4.30	14,100	19,117	
	4.56	13,600	18,439	RS-26-185 46 (21)
	4.89	11,000	14,914	
	5.13	11,800	15,998	
	5.38	10,600	14,371	
	5.63	9,000	12,202	
	5.86	9,900	13,422	
	6.14	8,400	11,389	RS-30-185 50 (23)
	6.83	7,100	9,626	
	7.17	6,400	8,677	
RS-xx-380 1850 lb-ft (2508 Nm)	5.52	11,200	15,185	
	6.07	10,720	14,507	
	6.37	9,500	12,880	
	6.75	9,100	12,338	RS-30-380 50 (23)
	7.24	7,400	10,033	
	7.83	7,000	9,491	RS-38-380 58 (26)
	9.14	5,900	7,999	
	10.12	4,700	6,372	
	10.62	4,300	5,830	

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)
		lb-ft	Nm	Duty I*
MT-44-14X 1650 lb-ft (2237 Nm	3.55	18,200	24,674	64 (29)
	3.70	18,000	24,403	64 (29)
	3.90	16,400	22,233	64 (29)
	4.11	15,800	21,420	64 (29)
	4.33	15,200	20,607	64 (29)
	4.63	14,200	19,251	64 (29)
	4.88	12,600	17,082	64 (29)
	5.29	11,600	15,726	64 (29)
	5.86	8,600	11,659	64 (29)
	6.14	8,200	11,117	64 (29)

*Duty I, applies only to loaded weight of the single unit vehicle (no trailer loads included).

Axle Model Gross Engine Torque	Ratio	Duty I Input Torque		Duty I* Maximum GVW lb (kg) (1000)	Duty II Input Torque		Duty II Maximum GCW lb (kg) (1000)
		lb-ft	Nm		lb-ft	Nm	
MT-40-14x Hypoid 1650 lb-ft (2237 Nm)	3.25	20,400	27,656	MT-40-14X 60 (27) MT-40-14X Plus 62 (28)	23,000	31,181	110 (50)
	3.36	20,400	27,656		23,000	31,181	110 (50)
	3.42	20,400	27,656		23,000	31,181	110 (50)
	3.55	18,200	24,674		22,100	29,961	110 (50)
MT-40-14X Plus Hypoid 1650 lb-ft (2237 Nm)	3.70	18,000	24,403		22,100	29,961	110 (50)
	3.90	16,400	22,233		22,100	29,961	110 (50)
	4.11	15,800	21,420		22,100	29,961	110 (50)
	4.33	15,200	20,607		21,800	29,554	110 (50)
	4.63	14,200	19,251		20,400	27,656	105 (48)
	4.88	12,600	17,082		18,000	24,403	100 (45)
	5.29	11,600	15,726		16,600	22,505	80 (36)
	5.86	8,600	11,659		12,200	16,540	65 (29)
	6.14	8,200	11,117		11,800	15,997	65 (29)
MT-40-14x Amboid 1650 lb-ft (2237 Nm)	3.25	20,400	27,656	MT-40-14X 60 (27) MT-40-14X Plus 62 (28)	23,000	31,181	110 (50)
	3.36	20,400	27,656		23,000	31,181	110 (50)
	3.42	20,400	27,656		23,000	31,181	110 (50)
MT-40-14x Plus Amboid 1650 lb-ft (2237 Nm)	3.55	18,200	24,674		22,100	29,961	110 (50)
	3.70	18,000	24,403		22,100	29,961	110 (50)
	3.90	16,400	22,233		22,100	29,961	110 (50)
	4.11	15,800	21,420		22,100	29,961	110 (50)

3 Recommended Applications/Vocational Ratings

Axle Model Gross Engine Torque	Ratio	Duty I Input Torque		Duty I* Maximum GVW lb (kg) (1000)	Duty II Input Torque		Duty II Maximum GCW lb (kg) (1000)
		lb-ft	Nm		lb-ft	Nm	
RT-xx-160/164 1850 lb-ft (2508 Nm)	3.07	30,000	40,674	RT-46-160/164 66 (30)	30,000	40,674	164 (80)
	3.21	30,000	40,674		30,000	40,674	164 (80)
	3.42	30,000	40,674		30,000	40,674	164 (80)
	3.58	30,000	40,674		30,000	40,674	164 (80)
	3.73	30,000	40,674		30,000	40,674	164 (80)
	3.91	30,000	40,674		30,000	40,674	164 (80)
	4.10	29,200	39,589		30,000	40,674	164 (80)
	4.30	26,600	36,064		30,000	40,674	150 (68)
	4.56	24,200	32,810		30,000	40,674	150 (68)
	4.89	21,600	29,285		30,000	40,674	130 (59)
	5.38	18,200	24,676		26,200	35,522	130 (59)
	5.63	16,000	21,693	RT-50-160 70 (32)	23,000	31,183	120 (54.5)
	6.14	14,200	19,252		20,400	27,658	100 (45)
	6.43	12,400	16,812		17,800	24,133	100 (45)
	6.83	12,400	16,812		17,800	24,133	100 (45)
	7.17	11,200	15,185		16,000	21,693	100 (45)
RT-xx-185 1850 lb-ft (2508 Nm)	3.73	35,000	47,449	RT-52-185 72 (33)	30,000	40,674	185 (84)
	4.30	28,200	38,230		30,000	40,674	185 (84)
	4.56	27,200	36,875		30,000	40,674	180 (81.5)
	4.89	22,000	29,825		30,000	40,674	180 (81.5)
	5.38	21,200	28,741		30,000	40,674	160 (73)
	6.14	16,800	22,776	RT-58-185 78 (35)	24,000	32,539	155 (70)
	6.83	14,200	19,251		20,400	27,656	155 (70)
	7.17	12,800	17,353		18,000	24,403	155 (70)

*Duty I, applies only to loaded weight of the single unit vehicle (no trailer loads included).

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GVW/GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

RESCUE

Vocational Definition

- Rescue is defined as specialized vehicles for rapid acceleration to crash sites away from hydrant hookups

Operating Conditions

- Operation is 90% on-road and 10% off-road with maximum grades of 20%
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces (on-road) and into sandy or muddy sites (off-road)
- Duty cycle is typically defined as fully loaded (up to 100% GVW) round trip
- High horsepower engines typically used
- Annual Mileage: Low

Vehicle Types

- Airport Rescue Fire (ARF)
- Crash Fire Rescue (CFR)
- Emergency Service
- Rapid Intervention Vehicle (RIV)

Vehicle Configuration	Approved	Not Approved
4X4 Straight trucks	X	
6X6 Straight trucks	X	
All wheel drive vehicles (see Section 4)		Contact Meritor
Single VRD (retarder)	X	
Multiple VRD (retarders)		X
Maximum tire static loaded radius 24.5”	X	

Notes:

1. Unless otherwise authorized, ratings at wider track or utilizing wide base single tires require Meritor approval. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Additional Notes
I	≤ 100% GVW	≤ 100% GVW	20%	On-Road > 90% / Off-Road < 10%

3 Recommended Applications/Vocational Ratings

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)
		lb-ft	Nm	Duty I
RS-xx-160/161 1850 lb-ft (2508 Nm)	3.07	21,100	28,472	RS-23-160/161 44 (20)
	3.21	21,100	28,472	
	3.42	21,100	28,472	
	3.58	20,800	28,201	
	3.73	20,800	28,201	RS-24-160 45 (20.5)
	3.91	20,800	28,201	
	4.10	20,800	28,201	
	4.30	19,100	25,896	
	4.56	17,400	23,591	RS-25-160 48 (22)
	4.89	15,500	21,015	
	5.13	14,300	19,388	
	5.38	13,100	17,761	
RS-xx-185/186 1850 lb-ft (2508 Nm)	3.42	23,000	31,183	RS-23-186 47 (21)
	3.58	22,100	29,963	
	3.73	22,100	29,963	
	4.30	20,300	25,896	RS-26-185 50 (23)
	4.56	19,500	27,523	
	4.89	15,800	21,422	RS-30-185 54 (24.5)
	5.13	16,900	22,913	
	5.38	15,200	20,608	
RT-xx-160/164 2050 lb-ft (2779 Nm)	3.07	30,000	40,674	RT-46-160/164 71 (32)
	3.21	30,000	40,674	
	3.42	30,000	40,674	
	3.58	30,000	40,674	
	3.73	30,000	40,674	
	3.91	30,000	40,674	
	4.10	30,000	40,674	RT-50-160 75 (34)
	4.30	30,000	40,674	
	4.56	30,000	40,674	
	4.89	30,000	40,674	
	5.38	26,200	35,522	
RT-xx-185 2050 lb-ft (2779 Nm)	3.73	30,000	40,674	RT-52-185 77 (35)
	4.30	30,000	40,674	
	4.56	30,000	40,674	
	4.89	30,000	40,674	RT-58-185 81 (37)
	5.38	30,000	40,674	

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GVW, input torque) may be approvable. Contact Meritor for possible approval.
3. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

SCHOOL BUS

Vocational Definition

- School Bus is defined as specially designed vehicles used for transporting students to and from school and/or school-related events

Operating Conditions

- Variety of terrain conditions (cities): light grade (Chicago or Detroit -- 0-8%), moderate grade (Cincinnati or Atlanta -- 0-12%), severe grade (Pittsburgh or San Francisco -- 0-20%)
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces
- Operation is 100% on-road
- Loading Conditions: 50% empty and 50% loaded portions of the duty cycle
  - The empty portion of the duty cycle considers 25% maximum payload
  - The loaded portion of the duty cycle considers 50% of maximum payload
  - In both cases, the payload is added to the empty bus weight
- Annual Mileage: Medium
- Start/Stop Cycle: 2 stops per mile

Vehicle Types

- Front Engine Commercial Chassis
- Front Engine Integral Coach
- Rear Engine Integral Coach

Vehicle Configuration	Approved	Not Approved
4X2 Straight buses	X	
Tandem Axles		X
Towed load		X
Single VRD (retarder)	X	
Multiple VRD (retarders)		X
Maximum tire static loaded radius 21.1”	X	

Notes:

1. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.

Duty Cycle Definition

	Empty	Loaded	Maximum Grade	Additional Notes
I	25% Max Payload	50% Max Payload	8%	On-Road – Light Grades
II	25% Max Payload	50% Max Payload	12%	On-Road – Moderate Grades
III	25% Max Payload	50% Max Payload	20%	On-Road – Steep Grades

3 Recommended Applications/Vocational Ratings

Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
MS-xx-13X 660 lb-ft (895 Nm)	3.90	8,500	11,524	33 (15)	25 (11)	Contact Meritor
	4.11	8,200	11,118	33 (15)	25 (11)	
	4.33	8,000	10,847	33 (15)	25 (11)	
	4.63	7,600	10,304	33 (15)	25 (11)	
	4.88	7,200	9,762	33 (15)	25 (11)	
	5.13	6,800	9,220	33 (15)	25 (11)	
	5.29	6,600	8,948	33 (15)	25 (11)	
	5.57	6,300	8,542	33 (15)	25 (11)	
	5.83	5,200	7,050	33 (15)	25 (11)	
	6.17	5,000	6,779	33 (15)	25 (11)	
	6.50	4,750	6,440	33 (15)	25 (11)	
MC/MS-xx-14X Hypoid 1200 lb-ft (1627 Nm)	2.64	11,500	15,592	Contact Meritor	Contact Meritor	Contact Meritor
	3.08	11,500	15,592			
	3.25	12,700	17,217			
	3.36	12,700	17,217			
	3.42	12,700	17,217			
	3.55	11,300	15,321			
	3.70	11,200	15,185			
	3.90	10,200	13,829			
	4.11	9,800	13,287			
	4.33	9,500	12,880			
	4.63	9,500	12,880			
	4.88	9,500	12,880			
	5.13	8,200	11,118			
	5.29	8,300	11,253			
	5.57	7,200	9,762			
	5.86	6,100	8,270			
	6.14	5,900	7,999			
	6.43	5,400	7,321			
	6.83	5,100	6,915			
	7.17	4,700	6,372			

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
RC/RS-xx-160/161 1850 lb-ft (2508 Nm)	3.07	21,000	28,472	Contact Meritor	Contact Meritor	Contact Meritor
	3.21	21,000	28,472			
	3.42	21,000	28,472			
	3.58	20,800	28,201			
	3.73	20,800	28,201			
	3.91	20,800	28,201			
	4.10	20,800	28,201			
	4.30	19,100	25,896			
	4.56	17,400	23,591			
	4.89	15,500	21,015			
	5.13	14,300	19,388			
	5.38	13,100	17,761			
	5.63	11,500	15,592			
	6.14	10,200	13,829			
	6.43	8,900	12,067			
	6.83	8,900	12,067			
	7.17	8,000	10,846			

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GVW, input torque) may be approvable. Contact Meritor for possible approval.

TRANSIT BUS

Vocational Definition

- Transit Coach is defined as vehicles designed specifically to transport people in and around city or suburban areas.

Operating Conditions

- Variety of terrain conditions (cities): light grade (Chicago or Detroit -- 0-8%), moderate grade (Cincinnati or Atlanta -- 0-12%), severe grade (Pittsburgh or San Francisco -- 0-20%)
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces
- Operation is 100% on-road
- Loading Conditions: 50% empty and 50% loaded portions of the duty cycle
  - The loaded portion of the duty cycle considers 80% of maximum payload
  - The empty portion of the duty cycle considers 75% maximum payload
  - The payload is added to the empty bus weight
- Annual Mileage: Moderate
- Start/Stop Cycle: 9 stops per mile

Vehicle Types

- Airport Shuttle
- City Bus
- Shuttle Bus
- Trolley

Vehicle Configuration	Approved	Not Approved
4X2 Straight coaches	X	
Single VRD (retarder)	X	
Multiple VRD (retarders)		X
Towed load		X
Maximum tire static loaded radius 20.3”	X	
Quiet Ride Gearing standard on 79163 models; recommended for all other axle models	X	

Notes:

1. Ratings at wider track or utilizing wide base single tires require Meritor approval. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.

Duty Cycle Definition

	Loaded	Empty	Maximum Grade	Additional Notes
I	80% Max Payload	75% Loaded	8%	On-Road – Light Grades
II	80% Max Payload	75% Loaded	12%	On-Road – Moderate Grades
III	80% Max Payload	75% Loaded	20%	On-Road – Steep Grades

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW lb (kg) (1000)		
		lb-ft	Nm	Duty I	Duty II	Duty III
RC/RS-xx-160 1850 lb-ft (2508 Nm)	3.07	19,500	26,438	Contact Meritor	Contact Meritor	Contact Meritor
	3.21	17,500	23,727			
	3.42	18,000	24,404			
	3.58	16,200	21,964			
	3.73	16,400	22,235			
	3.91	15,000	20,337			
	4.10	14,600	19,795			
	4.30	13,300	18,032			
	4.56	12,100	16,405			
	4.89	10,800	14,643			
	5.13	10,000	13,558			
	5.38	9,100	12,338			
	5.63	8,200	11,118			
79163	4.56	12,948	17,555	Contact Meritor	Contact Meritor	Contact Meritor
	4.89	10,920	14,805			
	5.38	10,062	13,642			
	5.63	9,204	12,478			
	6.14	7,454	10,106			

Note: Calculate input torque per formula on Page 4.

YARD TRACTOR

Vocational Definition

- Yard Tractor is defined as special purpose tractors which move trailers and containers onto and off vessels (roll-on — roll-off type) or from storage/staging areas to dockside cranes and/or rail terminal (lift-off — lift-on type)

Operating Conditions

- Operation is 100% on-road with level (LO-LO) or severe (RO-RO) grades
- Operation on well maintained asphalt/concrete or gravel surfaced yards, terminals or docks
- Duty cycles are typically defined as fully loaded (up to 100% GCW) going and minimally loaded (up to 30% GCW) return
- Restricted Speed (25 mph)
- Annual Mileage: Low
- Start/Stop Cycle: 6 stops per mile (typical)

Vehicle Types

- Load-On/Load-Off
- Port Tractor
- Rail Yard Spotter
- Roll-On/Roll-Off
- Stevedoring Tractor
- Trailer Spotter
- Yard Jockey

Vehicle Configuration	Approved	Not Approved
4X2 Tractors	X	
6X4 Tractors	X	
Straight trucks and tractors with liftable auxiliary axle(s) that meet guidelines on Page 10 and Page 11	X	
Straight trucks and tractors with liftable auxiliary axle(s) that **do not** meet guidelines on Page 10 and Page 11		Contact Meritor
Single VRD (retarder)		X
Maximum tire static loaded radius 19.5”	X	

Notes:

1. Unless otherwise authorized, ratings at wider track or utilizing wide base single tires require Meritor approval. For wide based single wheel approval conditions, see Section 2 — Structure Charts/On-Highway.
2. The conditions of all applicable notes starting on Page 2 must be met.

Duty Cycle Definition

	Load Going	Load Return	Maximum Grade	Maximum Transmission Ratio	Nominal Stall Ratio
I	≤ 100% GCW	≤ 30% GCW	3% LO/LO	8.05	2.50
II	≤ 100% GCW	≤ 30% GCW	15% RO/RO	8.05	2.50

Axle Ratings

		Maximum GCW lb (kg) (1000)	
Axle Model	**Ratios**	**Duty I**	**Duty II**
RS-24-160	6.14	81 (37)	68 (30)
	6.43	81 (37)	68 (30)
	6.83	81 (37)	68 (30)
	7.17	81 (37)	68 (30)
RS-23-186	7.17	81 (37)	68 (30)
	7.83	96 (43.5)	75 (34)
RS-30-380	7.24	125 (57)	96 (43.5)
	7.83	125 (57)	96 (43.5)
	9.14	125 (57)	96 (43.5)
	10.12	125 (57)	96 (43.5)
	10.62	125 (57)	96 (43.5)
MT-40-14X **MT-40-14X Plus**	6.14	125 (57)	96 (43.5)
	6.43	125 (57)	96 (43.5)
	6.83	125 (57)	96 (43.5)
	7.17	125 (57)	96 (43.5)
RT-xx-160/164	6.14	160 (73)	Contact Meritor
	6.43	160 (73)	
	6.83	160 (73)	
	7.17	160 (73)	

Notes:

1. Calculate input torque per formula on Page 4.
2. Values that exceed above limits (GCW, input torque) may be approvable. Contact Meritor for possible approval.
3. For approved Gross Engine Torques and approved Axle Input Torques, contact Meritor.
4. If specifying axle pump option, calculate input shaft speed per formula on Page 6 to assure 2500 rpm maximum limit is not exceeded for long durations.

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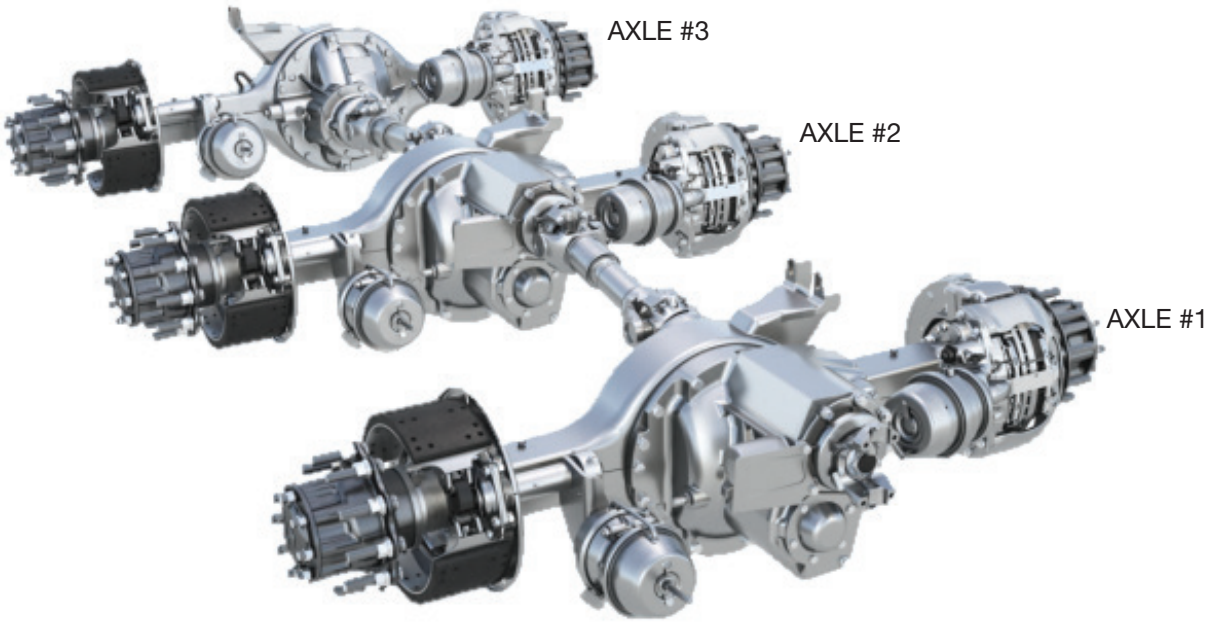
SECTION 4 — PRODUCT INFORMATION

TRIDEM AXLES



Tridem Configuration			
Model	**Axle #1**	**Axle #2**	**Axle #3**
RZXX166	RD/RP23164	RD/RP23164	RR23164
RZXX188	RP26185	RP26185	RR26185

Tridem Guidelines Maximum GAWR by Axle Ratio

RZ-166 SERIES – lb											
SLR	**AXLE RATIOS**										
(Inches)	**3.42**	**3.58**	**3.73**	**3.91**	**4.10**	**4.30**	**4.56**	**4.89**	**5.38**	**5.63**	**6.14**
20.8 Max	51,000	53,000	55,000	58,000	61,000	64,000	68,000	69,000			

RZ-166 SERIES – kg											
SLR	**AXLE RATIOS**										
(mm)	**3.42**	**3.58**	**3.73**	**3.91**	**4.10**	**4.30**	**4.56**	**4.89**	**5.38**	**5.63**	**6.14**
528 Max	23,133	24,040	24,948	26,308	27,669	29,030	30,844	31,298			

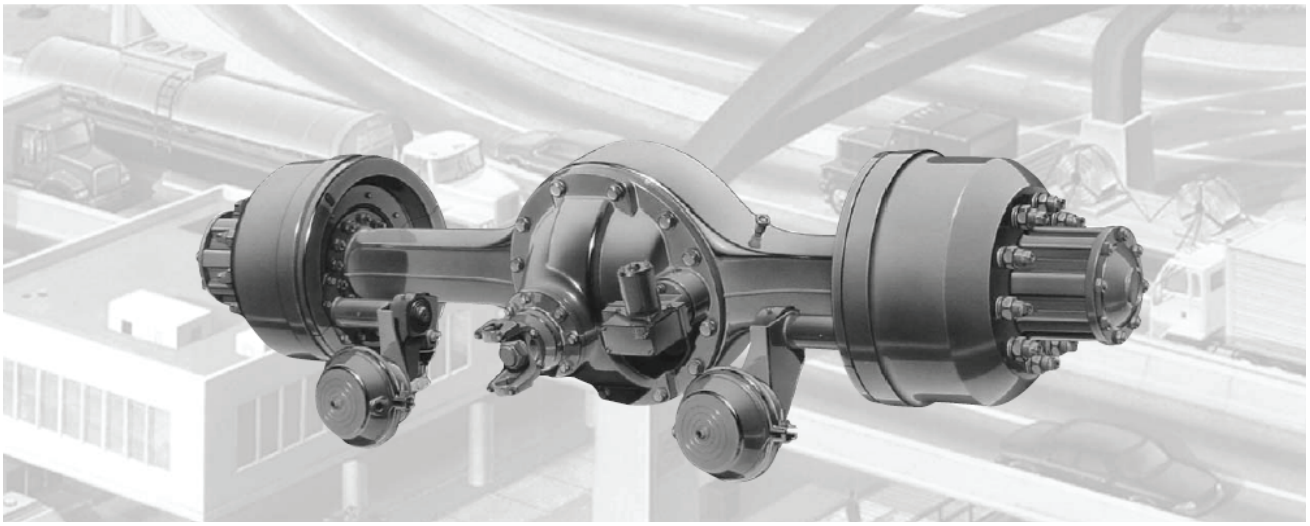
RZ-188 SERIES – lbs							
SLR	**AXLE RATIOS**						
(Inches)	**3.73**	**4.30**	**4.56**	**4.89**	**5.38**	**6.14**	**6.83**
20.0 Max	42,000	49,000	52,000	55,000	61,000	70,000	78,000
20.8 Max	40,000	47,000	50,000	53,000	59,000	67,000	74,000

RZ-188 SERIES – kg							
SLR	**AXLE RATIOS**						
(mm)	**3.73**	**4.30**	**4.56**	**4.89**	**5.38**	**6.14**	**6.83**
508 Max	19,051	22,226	23,587	24,948	27,669	31,751	35,380
528 Max	18,144	21,319	22,680	24,040	26,762	30,391	33,566

Notes: See appropriate vocational guideline for:

1. Input Torque
2. GVW
3. GCW
4. Track

TWO-SPEED AXLE

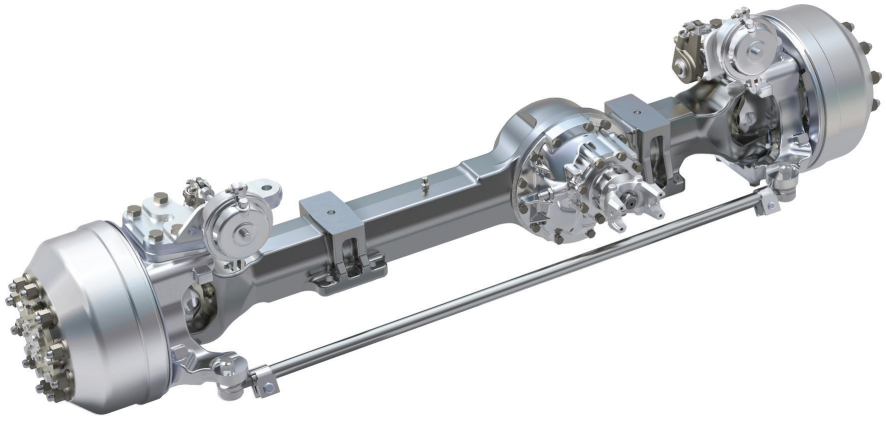


Axle Ratings

Axle Model Gross Engine Torque	Ratios	Input Torque		Maximum GVW/GCW lb (kg) (1000)
		lb-ft	Nm	Duty I
RS-21-230 1450 lb-ft (1966 Nm)	4.10/5.72	5,400	7,457	33 (15)
	4.56/6.36	4,500	6,101	33 (15)
	5.38/7.50	3,900	5,287	33 (15)
	5.86/8.17	3,600	4,880	33 (15)
RS-23-240 1450 lb-ft (1966 Nm)	4.10/5.59	7,200	9,762	50 (23)
	4.30/5.86	6,200	8,406	50 (23)
	4.56/6.21	6,200	8,406	50 (23)
	4.88/6.65	5,800	7,864	50 (23)
	5.57/7.60	4,900	6,643	50 (23)
	6.50/8.86	3,900	5,287	50 (23)

Note: Two speed axles are approved for City Delivery and Construction vocations.

HEAVY DUTY FRONT DRIVE STEER



Axle Ratings

Medium Duty MX Series

- MX-10-120-EVO
- MX-12-120-EVO
- MX-14-120-EVO
- MX-16-120
- MX-18-120

To be used only with the MTC-4210/13 transfer cases.

Medium Duty MX Carrier Application Guidelines

Diff Lock	Not Applicable			
Thrust Screw	Required on MX-12/14/16-120			
Ratio	**Part-Time Usage Maximum Allowable Input Torque ft-lb** T_{Allow}	**Full-Time Usage Maximum Allowable Input Torque ft-lb** T_{Allow}	**MX-16/18 Input Torque @ Max Brake Capacity ft-lb** T_{Brake}	**MX-10/12/14 Input Torque @ Max Brake Capacity ft-lb** T_{Brake}
3.31	9,310	6,700	7,805	5,690
3.58	8,190	5,900	7,215	5,260
3.73	8,750	6,300	6,925	5,050
3.91	7,080	5,100	6,605	4,815
4.10	7,640	5,500	6,300	4,595
4.30	6,390	4,600	6,010	4,380
4.56	6,530	4,700	5,665	4,130
4.88*	6,110	4,400	5,295	3,860
5.13	5,690	4,100	5,035	3,670
5.29	5,280	3,800	4,885	3,560
5.57*	5,140	3,700	4,640	3,380
5.86	4,580	3,300	4,410	3,215
6.14*	3,750	2,700	4,205	3,065
6.83	3,330	2,400	3,780	2,755
7.17	2,920	2,100	3,605	2,625

*Available in HR (High Retardation) version.

4 Product Information

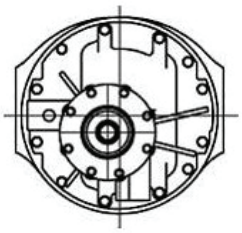
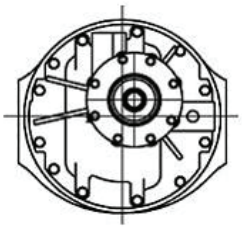
Heavy Duty MX Series

- MX-17-140
- MX-19-140
- MX-21-140

Heavy Duty MX-140 Carrier Application Guidelines – Part-Time Use

Diff Lock	Not Applicable			
Thrust Screw	Required on MX-12/14/16-120			
Pinion Position	DIRDL or DIRUR			
Ratio	**Maximum Allowable Input Torque (lb-ft)**		**Input Torque @ Max Brake Capacity (lb-ft)**	
	DIRDL	DIRUR*	Type 24	Type 30
3.42	12,300	17,640	7,554	8,967
3.58	10,900	15,690	7,216	8,566
3.73	10,800	15,560	6,926	8,222
3.91	9,900	14,170	6,607	7,843
4.10	9,500	13,610	6,301	7,480
4.33	9,200	13,190	5,966	7,082
4.63	9,200	13,190	5,580	6,623
4.88	8,800	12,500	5,294	6,284
5.13	7,800	11,390	5,036	5,978
5.29	8,000	11,530	4,883	5,797
5.57	7,000	10,000	4,638	5,506
5.86	6,000	8,470	4,408	5,233
6.14	5,700	8,190	4,207	4,995
6.43	5,200	7,500	4,018	4,769
6.83	4,900	7,080	3,782	4,490
7.17	4,500	6,530	3,603	4,277

* Reverse input rotation required.

Typical Pinion Layout	 **A**	 **B**
Gearing	Standard	Standard
Tooth Contact – Front	Coast Side	Drive Side
Tooth Contact – Rear	Drive Side	Coast Side
Input Rotation – Front1	CCW	CW
Input Rotation – Rear1	CW	CCW
Input Location	DIRDL	DIRUR

Note: Contact your sales person for Tandem Axle ratio availability.

Heavy Duty MX-140 Carrier Application Guidelines – Full-Time Use

Diff Lock	Not Applicable			
Thrust Screw	Required on MX-12/14/16-120			
Pinion Position	DIRDL or DIRUR			
Ratio	**Maximum Allowable Input Torque (lb-ft)**		**Input Torque @ Max Brake Capacity (lb-ft)**	
	DIRDL	DIRUR*	Type 24	Type 30
3.42	8,890	12,700	7,554	8,967
3.58	7,910	11,300	7,216	8,566
3.73	7,840	11,200	6,926	8,222
3.91	7,140	10,200	6,607	7,843
4.10	6,860	9,800	6,301	7,480
4.33	6,650	9,500	5,966	7,082
4.63	6,650	9,500	5,580	6,623
4.88	6,300	9,000	5,294	6,284
5.13	5,740	8,200	5,036	5,978
5.29	5,810	8,300	4,883	5,797
5.57	5,040	7,200	4,638	5,506
5.86	4,270	6,100	4,408	5,233
6.14	4,130	5,900	4,207	4,995
6.43	3,780	5,400	4,018	4,769
6.83	3,570	5,100	3,782	4,490
7.17	3,290	4,700	3,603	4,277

* Reverse input rotation required.

4 Product Information

Heavy Duty MX Series

- MX-21-160
- MX-21-160R
- MX-23-160
- MX-23-160R

Heavy Duty MX Carrier Application Guidelines – Part-Time Use

Diff Lock	Available				
Thrust Screw	Available				
MX-160 Pinion Position	DIRDL or DIRUR				
MX-160R Pinion Position	DIRUL or DIRDR				
Ratio	**Maximum Allowable Input Torque (lb-ft)**				**Input Torque @ Max Brake Capacity (lb-ft)**
	MX-21-160	MX-21-160R*	MX-23-160	MX-23-160R*	
	DIRDL	DIRDR	DIRUR	DIRUL	
3.07	20,400	N/A	22,300	N/A	9,989
3.21	20,400	N/A	22,300	N/A	9,553
3.42	20,400	N/A	22,300	N/A	8,967
3.58	20,200	N/A	22,300	N/A	8,566
3.73	20,200	N/A	22,300	N/A	8,222
3.91	20,200	N/A	22,300	N/A	7,843
4.10	20,200	20,200	22,000	22,000	7,480
4.30	18,600	N/A	21,000	N/A	7,132
4.56	16,800	16,800	19,800	19,800	6,725
4.89	15,000	15,000	18,500	18,500	6,271
5.13	14,800	14,800	17,600	17,600	5,978
5.29	13,400	13,400	17,000	17,000	5,797
5.38	12,600	12,600	16,800	16,800	5,700
5.63	11,200	11,200	16,000	16,000	5,447
5.86	10,500	10,500	15,400	15,400	5,233
6.14	9,800	9,800	14,600	14,600	4,995
6.43	8,600	N/A	12,700	N/A	4,769
6.83	8,600	8,600	12,700	12,700	4,490
7.17	7,800	7,800	11,400	11,400	4,277

* Reverse input rotation required.

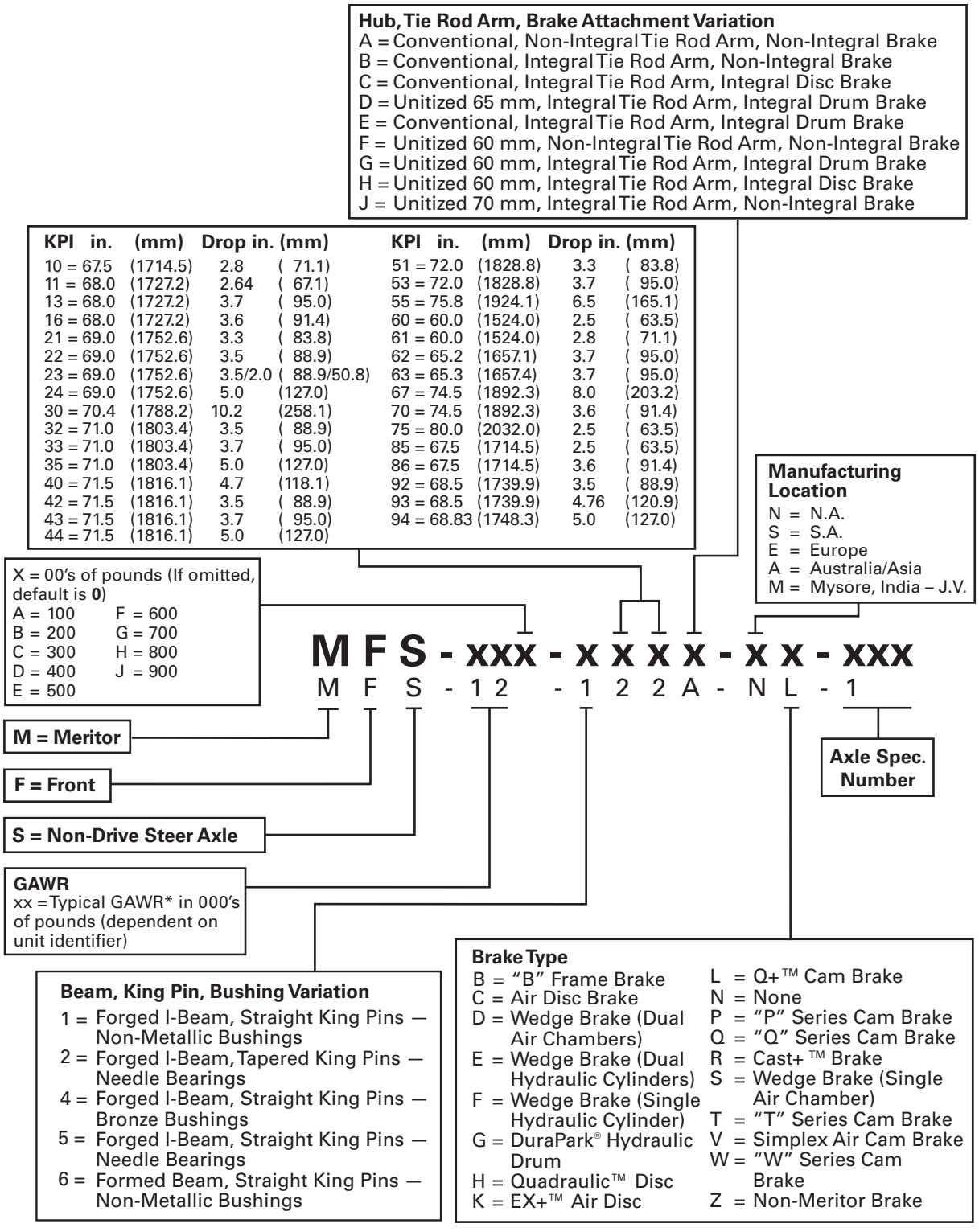
Heavy Duty MX Carrier Application Guidelines – Full-Time Use

Diff Lock	Available				
Thrust Screw	Available				
MX-160 Pinion Position	DIRDL or DIRUR				
MX-160R Pinion Position	DIRUL or DIRDR				
Ratio	**Maximum Allowable Input Torque (lb-ft)**				**Input Torque @ Max Brake Capacity (lb-ft)**
	MX-21-160	MX-21-160R*	MX-23-160	MX-23-160R*	
	DIRDL	DIRDR	DIRUR	DIRUL	
3.07	14,700	N/A	21,000	N/A	9,989
3.21	14,700	N/A	21,000	N/A	9,553
3.42	14,700	N/A	21,000	N/A	8,967
3.58	14,550	N/A	20,800	N/A	8,566
3.73	14,550	N/A	20,800	N/A	8,222
3.91	14,550	N/A	20,800	N/A	7,843
4.10	14,550	14,550	20,800	20,800	7,480
4.30	13,400	N/A	19,100	N/A	7,132
4.56	12,200	12,200	17,400	17,400	6,725
4.89	10,850	10,850	15,500	15,500	6,271
5.13	10,650	10,650	15,200	15,200	5,978
5.29	9,650	9,650	13,800	13,800	5,797
5.38	9,200	9,200	13,100	13,100	5,700
5.63	8,050	8,050	11,500	11,500	5,447
5.86	7,550	7,550	10,800	10,800	5,233
6.14	7,150	7,150	10,200	10,200	4,995
6.43	6,250	N/A	8,900	N/A	4,769
6.83	6,250	6,250	8,900	8,900	4,490
7.17	5,600	5,600	8,000	8,000	4,277

* Reverse input rotation required.

SECTION 5 — MODEL NOMENCLATURE AND GLOSSARY

Front Non-Drive Axle Model Nomenclature



*For actual GAWR, consult application approval for the axle specification.

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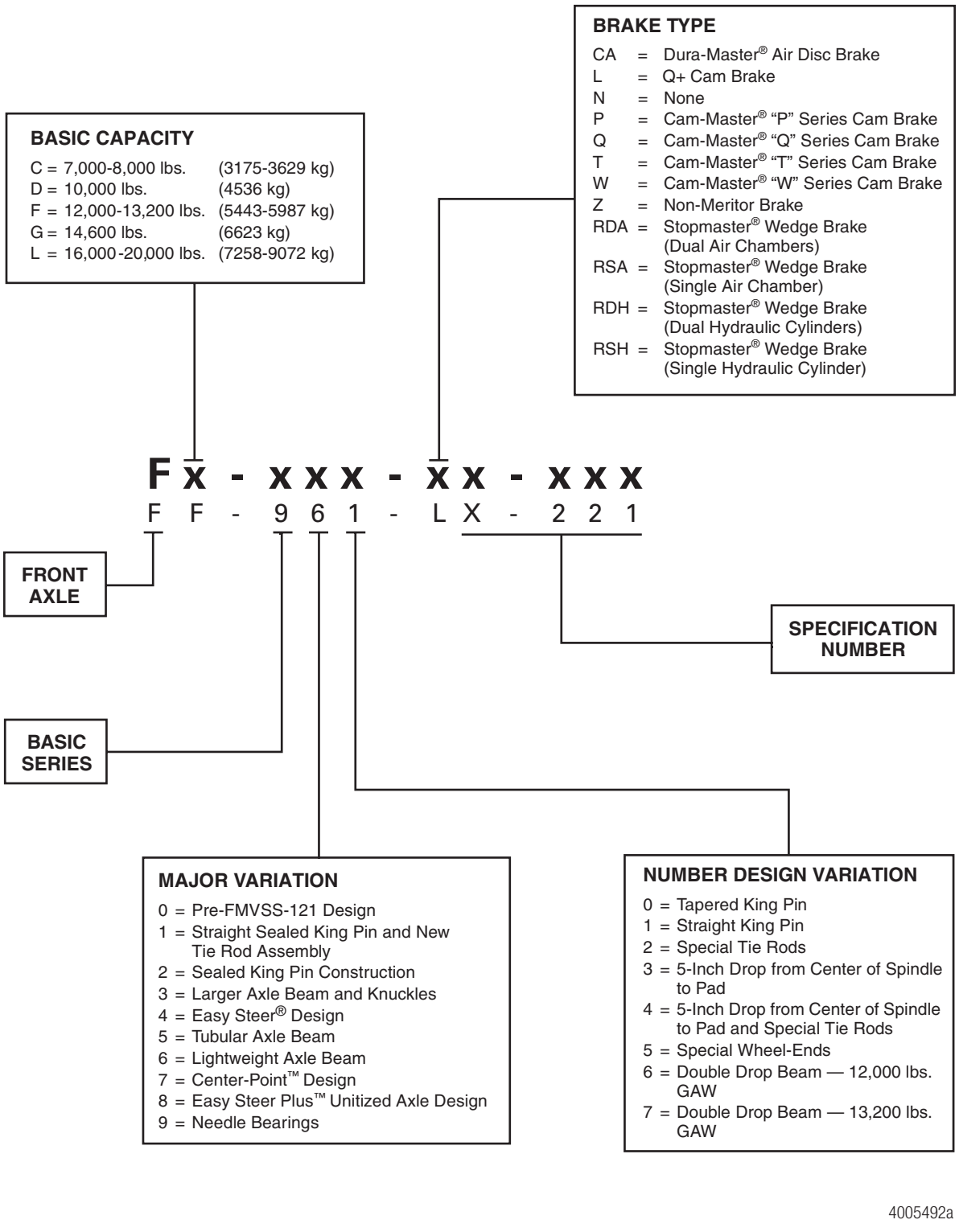
Front Non-Drive Axle Model Nomenclature (Legacy)



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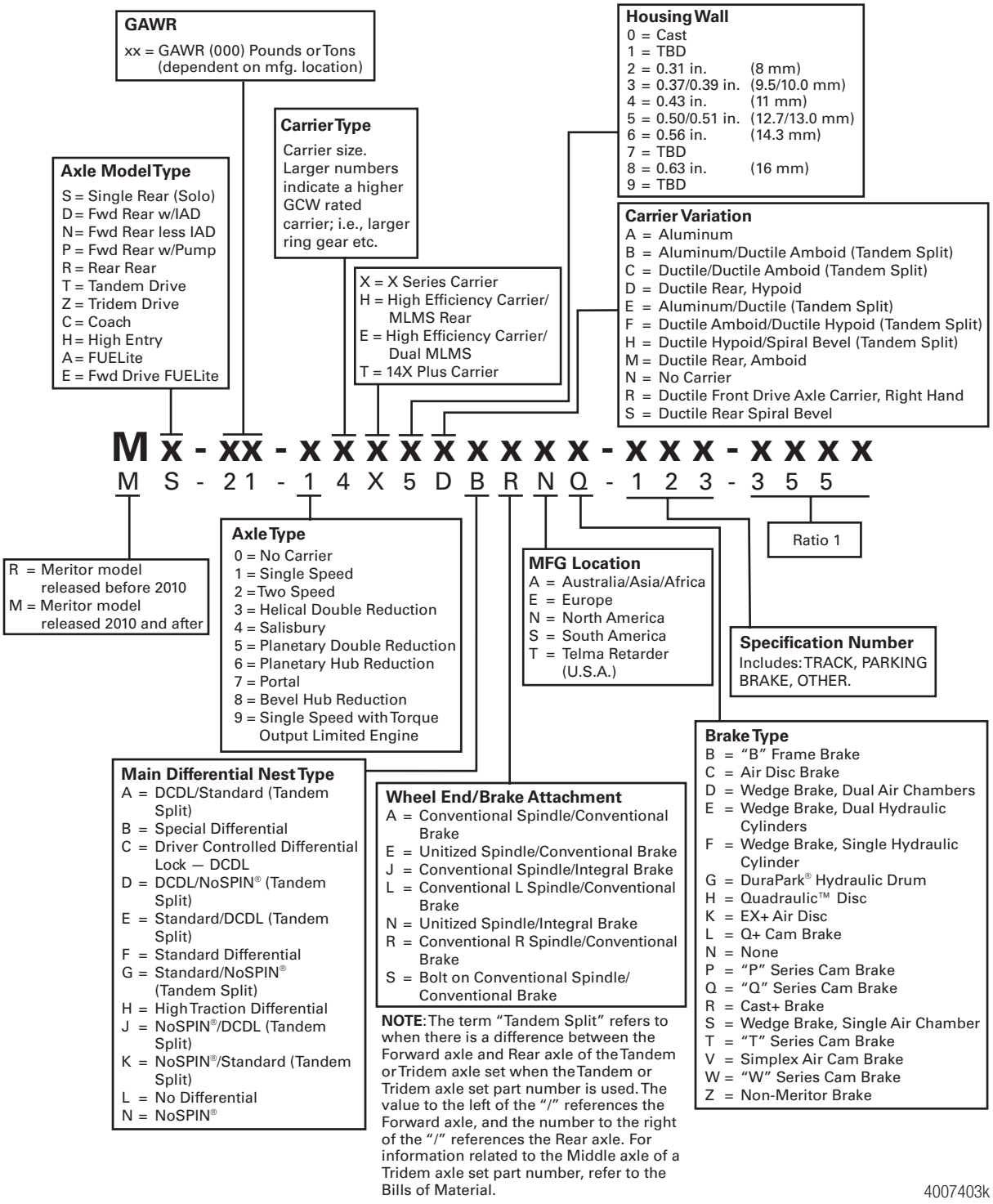
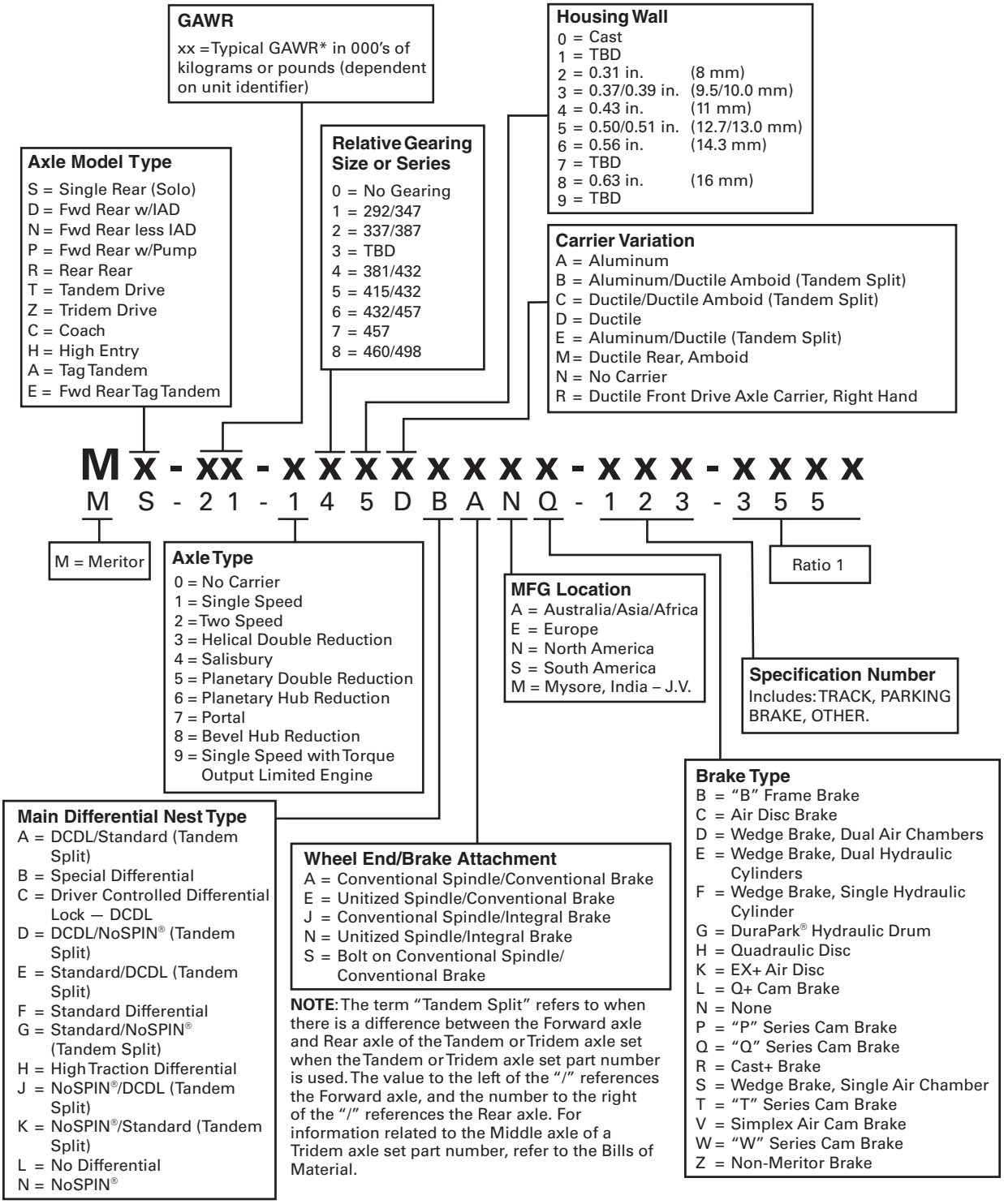
5 Model Nomenclature and Glossary

Drive Axle Model Nomenclature for 13X, 14X and 17X Model Series



Drive Axle Model Nomenclature for 145 Model Series



NOTE: The term "Tandem Split" refers to when there is a difference between the Forward axle and Rear axle of the Tandem or Tridem axle set when the Tandem or Tridem axle set part number is used. The value to the left of the "/" references the Forward axle, and the number to the right of the "/" references the Rear axle. For information related to the Middle axle of a Tridem axle set part number, refer to the Bills of Material.

*For actual GAWR, consult application approval for the axle specification.

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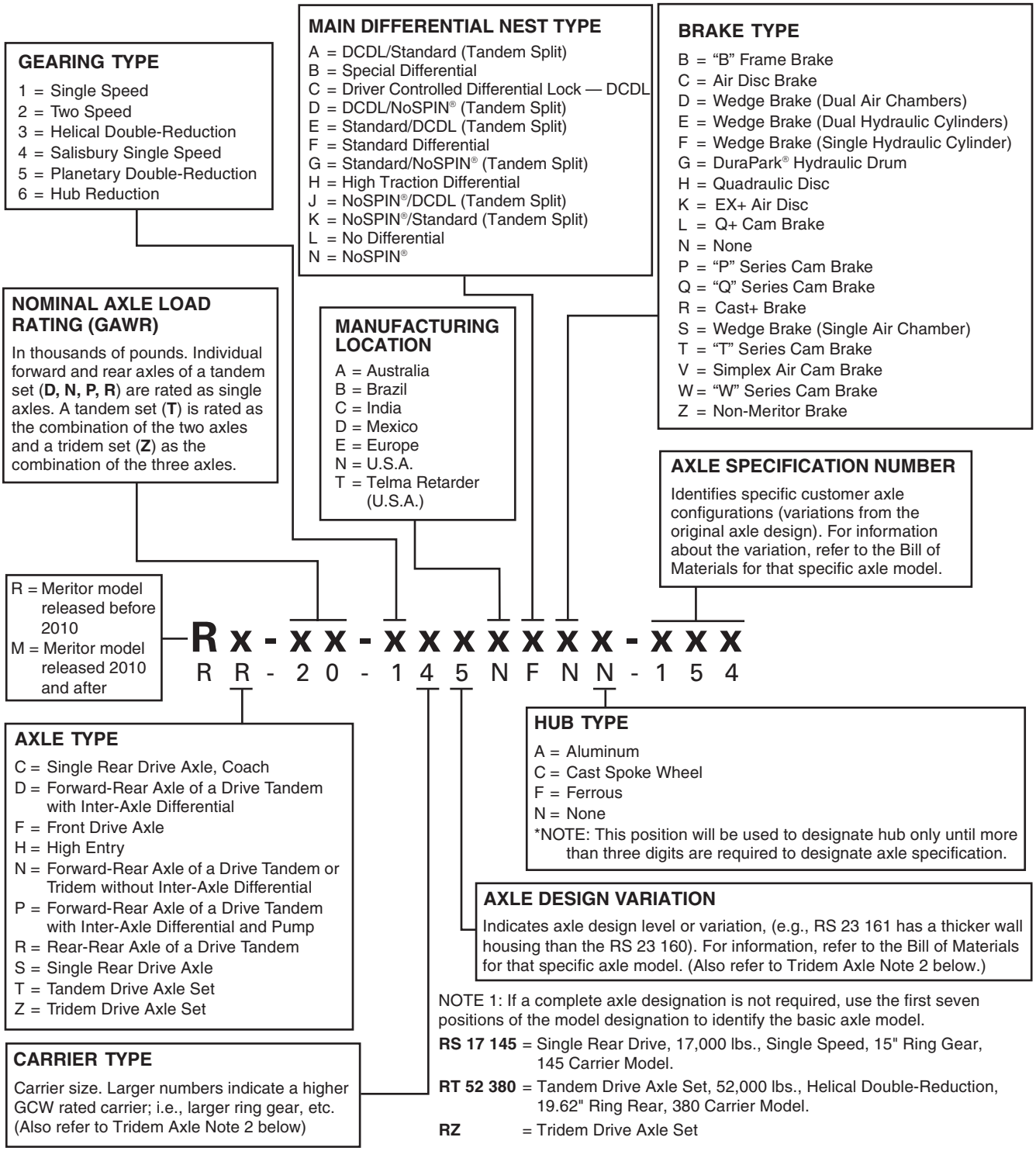
5 Model Nomenclature and Glossary

Drive Axle Model Nomenclature



NOTE 1: If a complete axle designation is not required, use the first seven positions of the model designation to identify the basic axle model.

RS 17 145 = Single Rear Drive, 17,000 lbs., Single Speed, 15" Ring Gear, 145 Carrier Model.

RT 52 380 = Tandem Drive Axle Set, 52,000 lbs., Helical Double-Reduction, 19.62" Ring Rear, 380 Carrier Model.

RZ = Tridem Drive Axle Set

NOTE 2, FOR TRIDEM AXLES ONLY:
For a Tridem Drive Axle Set (**RZ**), the number in the sixth position designates the carrier in the first axle. The number in the seventh position designates the carriers in the second and third axles.

NOTE 3: The term "Tandem Split" refers to when there is a difference between the Forward axle and Rear axle of the Tandem or Tridem axle set when the Tandem or Tridem axle set part number is used. The value to the left of the "/" references the Forward axle, and the number to the right of the "/" references the Rear axle. For information related to the Middle axle of a Tridem axle set part number, refer to the Bills of Material.

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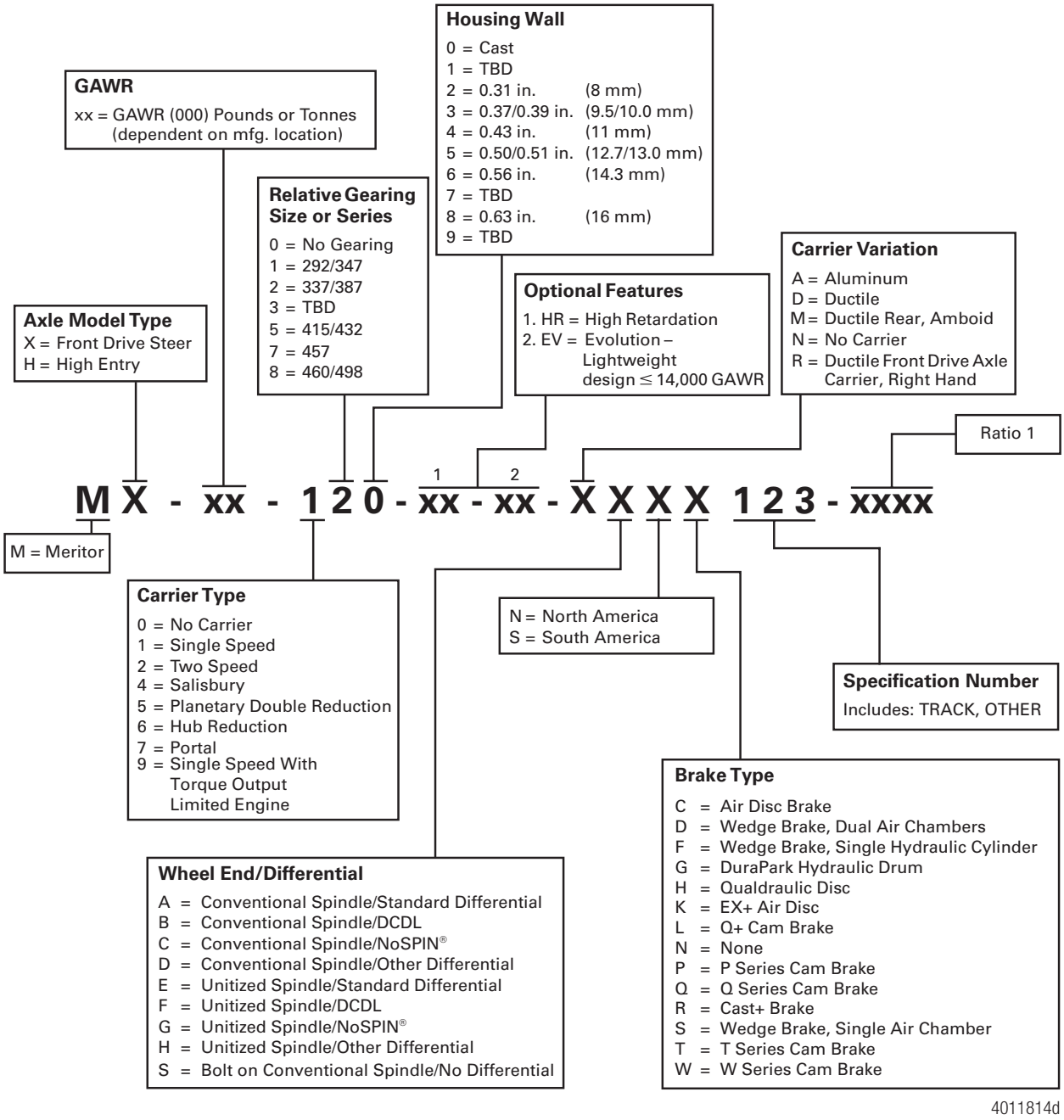
Front Drive Steer Axle Model Nomenclature



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5 Model Nomenclature and Glossary

Glossary

Active Suspension – While conventional suspension uses springs and shock absorbers to isolate the vehicle from the bouncing movement of the wheels when it contacts rough roads, active suspension uses power actuators that are controlled by a computer. These actuators place the wheels of the vehicle in the best position to accommodate rough roads as well as compensate for different load levels

Air Over/Under – In relation to suspensions.

Overslung – Suspension arm goes above or over the axle air bag.

Underslung – Suspension arm goes below or under the axle air bag.

Alternative Drive System – A system that uses pure electric energy or two or more distinct sources of energy for propulsion (e.g., electric/gasoline, hydraulic). This can increase the stress on the axle components, reducing the life of the axle.

Amboid Gear – Modified Spiral Bevel Gear that allows the pinion to be positioned above the ring gear centerline.

Auxiliary Axle (Pusher or Tag) – An extra axle kept in a lifted position and only dropped to the pavement when its extra load carrying capacity is needed. Pushers are located in front of the drive axle, and tags are located behind the drive axle. Both can also be steerable.

Auxiliary Transmission – Additional gear box that increases the gear ratio combinations when used with the main transmission or multi-speed axles.

Axle Shift System – The actual control mechanism that is employed to control movement of a shift fork or sliding clutch to vary the axle ratio.

Battery Electric Vehicle (BEV) – A type of vehicle that is fully-electric with rechargeable batteries and no gasoline engine.

Beam Drop – Distance from the Brake Shoe centerline to the Brake Chamber centerline.

Bearing Shoulder to Bearing Shoulder Dimension – Distance from the machined inner bearing contact point on one side of the axle to the other machined inner bearing contact point on the other side.

Bogie – A combination of two axles usually pivoting about a common trunnion.

Combination – Truck coupled to one or more trailers.

DCDL (Driver-Controlled Differential Lock) – Driver-controlled traction device that can be operated from the vehicle cab by a switch. A mechanism that eliminates the action of the differential so that both wheels can be driven to improve tractive efforts on slippery surfaces.

Dolly – Two-wheel trailer equipped with drawbar and the lower portion of a fifth wheel and other components necessary to permit a semi trailer and dolly combination to operate a full trailer; sometimes called a “PUP”.

Double Drop – Beam having a drop in the center between the spring mounting pads as well as the drop from the KPI to the spring mounting pads.

Double Reduction – Dual gear reduction generally used in rear axles.

Drive Input to Carrier –

DIRDL - Drive Input Rear Down Left
DIRUR - Drive Input Rear Up Right
DIRUL - Drive Input Rear Up Left
DIRDR - Drive Input Rear Down Right

Dual Torque Engines (e.g., 1550/1750) – Engines having two torque curves: a high torque curve available in the higher numeric transmission ratios and a lower torque for lower numeric transmission ratios. The Engine Control Unit (ECU) manages these changes.

Engine Brake – A system that allows for slowing of a vehicle that is independent of the conventional braking systems.

GAW (Gross Axle Weight) – Total weight on a specific axle position.

GAWR (Gross Axle Weight Rating) – The total weight capacity of an axle (single, tandem, or tridem).

GCW (Gross Combination Weight) – The total weight of a truck and trailer combination and its entire contents.

GCWR (Gross Combination Weight Rating) – The total weight capacity of a truck and trailer combination and its entire contents as determined by axle ratings.

Gear Ratio – Ratio of the speed of the propeller shaft to the speed of the rear axle shaft.

Grade – The degree of inclination of a road, typically specified in percent.

GVW (Gross Vehicle Weight) – The total loaded weight of a single vehicle (no trailers included).

GVWR (Gross Vehicle Weight Rating) – The total loaded weight capacity of a truck or tractor only (no trailer weights included).

High CG (Center of Gravity) Vehicle – A vehicle whose cargo load center of mass height above the frame rail of the truck or tractor is higher than average. High center of gravity heights allows more weight transfer, particularly during braking and cornering, thus influencing the loading of the suspension and axle housing.

Horsepower – English unit used to denote the amount of work done in a given period of time, equal to 33,000 foot-pounds per minute.

Housing – A casing or container for mechanical components.

Housing Box, Rectangular Section – Cross section of square-armed or rectangular-armed housing.

HWT (Housing Wall Thickness) – Nominal housing wall thickness at the box section.

Hybrid Electric Vehicle (HEV) – A type of vehicle that uses both an electric engine and a conventional internal combustion engine.

IAD (Inter-Axle Differential) – Gear device dividing power equally between axles and compensating for unequal tire diameters.

Integral Knuckle – One piece steel knuckle forging made with both steer and tie rod arms forged into one piece.

Jake Brake – Trademark of engine brakes by the Vehicle Equipment Division of The Jacobs Manufacturing Co. See “Engine Brake”.

KPI (Kingpin Intersection) – The distance between the intersection points of LH and RH steer knuckles pivot, or the points where the spindle axis crosses the king pin axis.

Limited-slip Differential – Mechanical action that resists the free working of an ordinary differential, thus distributing a greater torque to the slower turning wheel or axle.

LL or L – Transmission gears designed to be used as “Creeper” or “Crawler” for vehicle positioning and speed control.

Mechanical Suspensions – A suspension that is not an air ride suspension.

Michigan Special Gravel Trains – An eleven axle combination permitted in Michigan with gross weights as high as 164,000 lbs.

NoSPIN® – Speed sensitive automatic locking differential. It powers both drive wheels while automatically permitting differential action to compensate for wheel speed differences from turning or driving on uneven surfaces.

Job Site Travel Rate (Creep Rate) – Extremely slow operation (< 5 mph) when the vehicle is loaded and the auxiliary axle is lifted.

Outset Wheel – Wheel with a centerline of the tire outboard of the wheel mounting surface.

Parallelogram Suspension – A suspension with four trailing arms that allow the axle to travel in a linear motion without caster change.

Regional Haul (Hub and Spoke) – On-highway (8% maximum grade) hauling goods within a region, typically a one day round trip.

Retarder – Auxiliary speed-reducing device.

Roll-Off Containers – Detachable open containers generally used for hauling refuse, scrap, and construction debris and are hoisted or winched over the rear of the truck chassis for transport.

Semi-trailer – Trailer used in connection with a truck tractor.

Single Reduction – Any axle assembly with only one gear reduction through its differential ring gear and drive pinion.

Site Travel – Slow speed operation up to 5 mph at a job site; not to exceed 5% of total operation miles of the vehicle.

Slip Torque – Engine torque required to slip wheels on the driving surface.

SLR (Static Loaded Radius) – The distance from the centerline of axle to the ground, under rated tire capacity, with the tire at rest.

SMC (Suspension Mounting Centers) – The distance between the suspension bracket mounting centers on the axle.

Soft Dampened Clutch – Special type of clutch that features a torsional mechanism that avoids impact loads being transmitted through the driveline.

STD Track (Standard Track) – The distance between the dual centerlines on a dual tire arrangement, or the distance between the tire centerlines on a single tire arrangement.

Steering Knuckle (Conventional) – Loose tie rod arm and steering arm

Straight Truck – A non-articulated vehicle that carries cargo in a body mounted to its chassis, rather than on a trailer towed by the vehicle.

Super Single Tire – Specially designed tire used in lieu of dual tires in certain applications. Can reduce maintenance and/or save weight compared to duals.

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Tandem Axles – Two-axle drive combination or dual drive axles.

Tandem Split – Refers to when there is a difference between the forward axle carrier and the rear axle carrier of the Tandem or Tridem axle set when the Tandem or Tridem axle set part number is used. The first character references the forward axle, and the second references the rear axle. For information related to the middle axle of a Tridem axle set, refer to the Bill of Materials. (e.g., one axle has a DCDL, and the other axle has a standard differential)

Torque Converter – A hydraulic drive that transmits power with ability to change torque.

Track – The distance between the dual tire centerlines on a dual tire arrangement or the distance between the tire centerlines on a single tire arrangement.

Tractor – Truck portion of combination or train.

Tridem Axles – A combination of three axles having a common suspension.

Truck – Straight truck with no trailer attached.

Two-speed Axle – A rear-axle assembly that has two different output ratios from the differential carrier assembly.

Utility Truck - A vehicle that is built to do a particular errand with more adequacy than a common transport vehicle.

Vocation – Specific usage of a vehicle in a defined industry.

VRD (Vehicle Retarder Device) – Auxiliary speed-reducing device including engine, transmission, exhaust, chassis and focally mounted.

Walking Beam Suspension – A mechanical suspension that attaches two axles together with the use of a leaf spring or structural beam that pivots about a trunnion tube.

Wheelbase – Distance between centerlines of front steer and rear drive axles or to centerline of tandem axles.

Wheel Inset, Negative – The rim centerline is positioned inboard of the wheel mounting face.

Wheel Inset, Positive – The rim centerline is positioned outboard of the wheel mounting face.

Wide Track – Extended length housing used to meet increased track and stability requirements.

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Printed in USA

TP-9441
Revised 05-24
(16579)