

Final Report

**Literature Review of the
Safety of Long Combination Vehicles
and their Operation in Canada.**

Prepared for

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Literature Review of the Safety of Long Combination Vehicles and their Operation in Canada.

1.0 Definition

Long Combination Vehicles (LCV's) are truck tractors with two or three trailers where either the number of trailers or the combined length of the configuration exceeds normal limits. Within Canada, LCV's are allowed to operate by special permit in Quebec, Manitoba, Saskatchewan, Alberta, British Columbia and the Northwest Territories.

Common LCV types include:

Rocky Mountain Double: Normally consists of a lead 40 to 53-foot trailer with a second 24 to 28-foot trailer. Use is restricted to divided highways and higher quality 2-lane highways.

Turnpike Double: Consists of two normal length trailers, which today includes 48-foot and 53-foot trailers. Use is restricted to divided highways.

Triple: Consists of three pup trailers (24 to 28-feet in length). Use is restricted to divided highways.

Exhibit 1 illustrates each of these vehicles.

2.0 Extent of Use

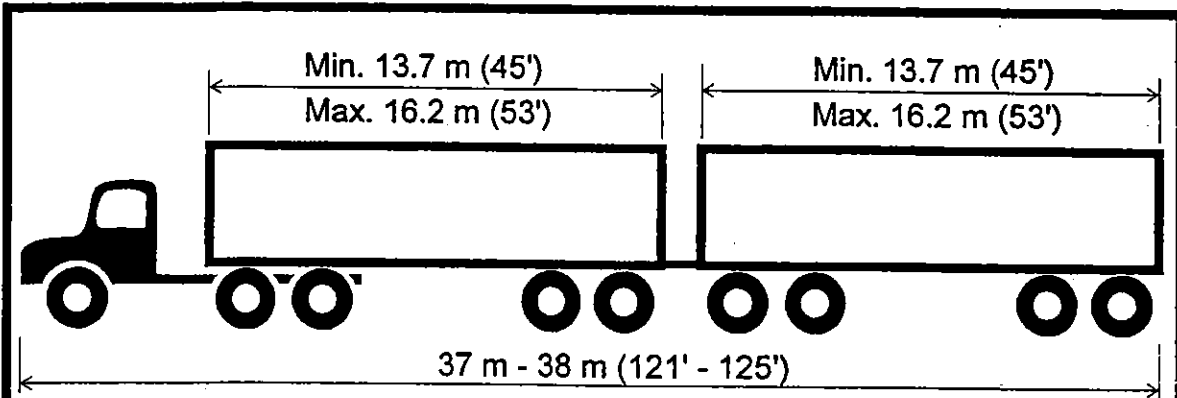
2.1 Canada

LCV operations in Canada date back to 1969 when Canadian Freightways was given a special permit to operate triple trailer combinations on Highways 2 between Edmonton and Calgary (Alberta Transportation 1985). This made Alberta one of the first road jurisdictions in North America to allow overlength vehicles of this type. This was followed by the introduction of the Rocky Mountain Double. Following testing, the turnpike double was allowed in 1985.

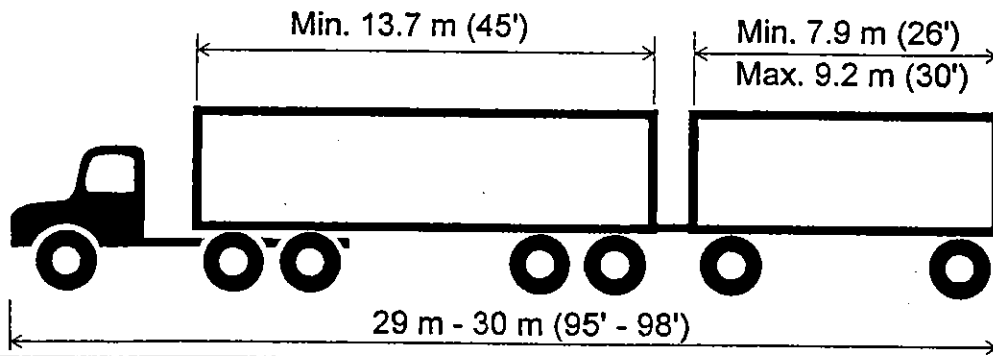
Nix (1995) provides a recent picture regarding the use of LCV's in Canada. At that time there were 175 companies with LCV permits. Based on a survey of these firms (76% response rate) he estimated total annual LCV activity to be near 71 million kilometres. Market share of intraprovincial tonnage was estimated as follows¹: Quebec, 2.6%; Manitoba, 2.6%; Saskatchewan, 6.4% and Alberta, 8.1%.

¹ Based on survey responses only. Actual market share for would be somewhat higher.

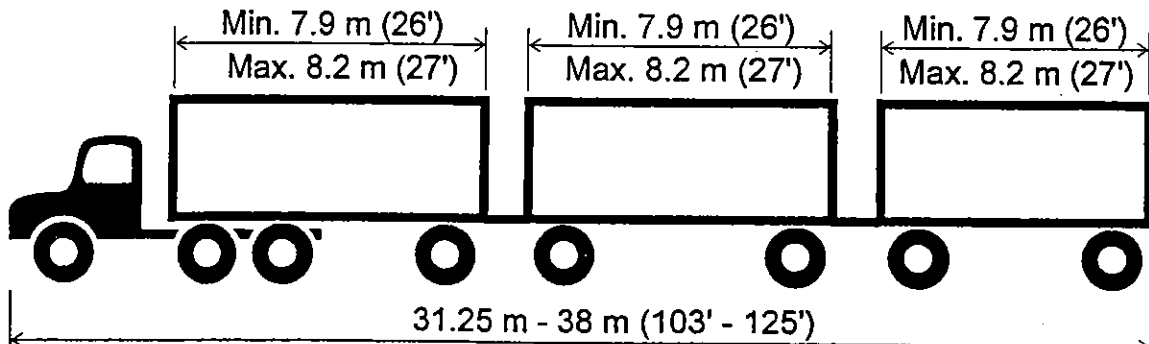
Exhibit 1: Common LCV Configurations



Turnpike Doubles



Rocky Mountain Doubles



Triple Trailer Units

Source: Nix 1995

Less-than-truckload (LTL) accounted for 40% of LCV use while retail (food, hardware, furniture) accounted for 25%. This indicates that these vehicles are hauling lighter density products.

Turnpike doubles were the most frequently used of the three vehicle types accounting for 60% of distance travelled while Rocky Mountain Doubles accounted for 32% and Triples 8%². In terms of coupling mechanisms, A-Trains accounted for 74% of the travel, B-Trains 12% and C-Trains 15%. Connector type usage by vehicle type was not indicated. Refer to Appendix A for an illustration of each connector type.

Currently in the four provinces³ that allow LCV's there are 259 companies with permits as shown by Exhibit 2. This is an overall increase of 48% in the number of LCV permits since 1995. While exact figures are not available for all provinces, these permits cover in the order of 2,000 vehicles. Exhibit 3 indicates the highway network for Rocky Mountain Doubles in Western Canada in 2003 (Clayton et al, 2003).

Exhibit 2: Summary of LCV Use by Province

Province	Number of Companies with LCV Permits	Number of vehicles Involved	Breakdown by Vehicle Type*		
			RMD	Turnpike Double	Triple ⁴
Quebec	51	388	0	100%	0
Manitoba	37	Several hundred	40%	30%	30%
Saskatchewan	36	399	65%	25%	10%**
Alberta	135	Up to 1,000	51%	45%	4%

* Breakdown for Manitoba is by number of companies with permits for vehicles type and not by usage. Saskatchewan numbers are estimates by departmental officials and not based results of a specific survey. Due to the different ways the vehicle breakdowns were provided an overall average breakdown cannot be estimated.

** The majority of this travel is by one company hauling retail products between Regina and Saskatchewan

2.2 United States

LCV's were first used in the United States during the late 1950's when tandem trailers (two forty foot trailers) were introduced on the New York State Thruway, the Massachusetts and Ohio Turnpikes and the Indiana Toll Road. By 1981, 12 states in the west had LCV's.

² Usage in Alberta and Saskatchewan was about 18%.

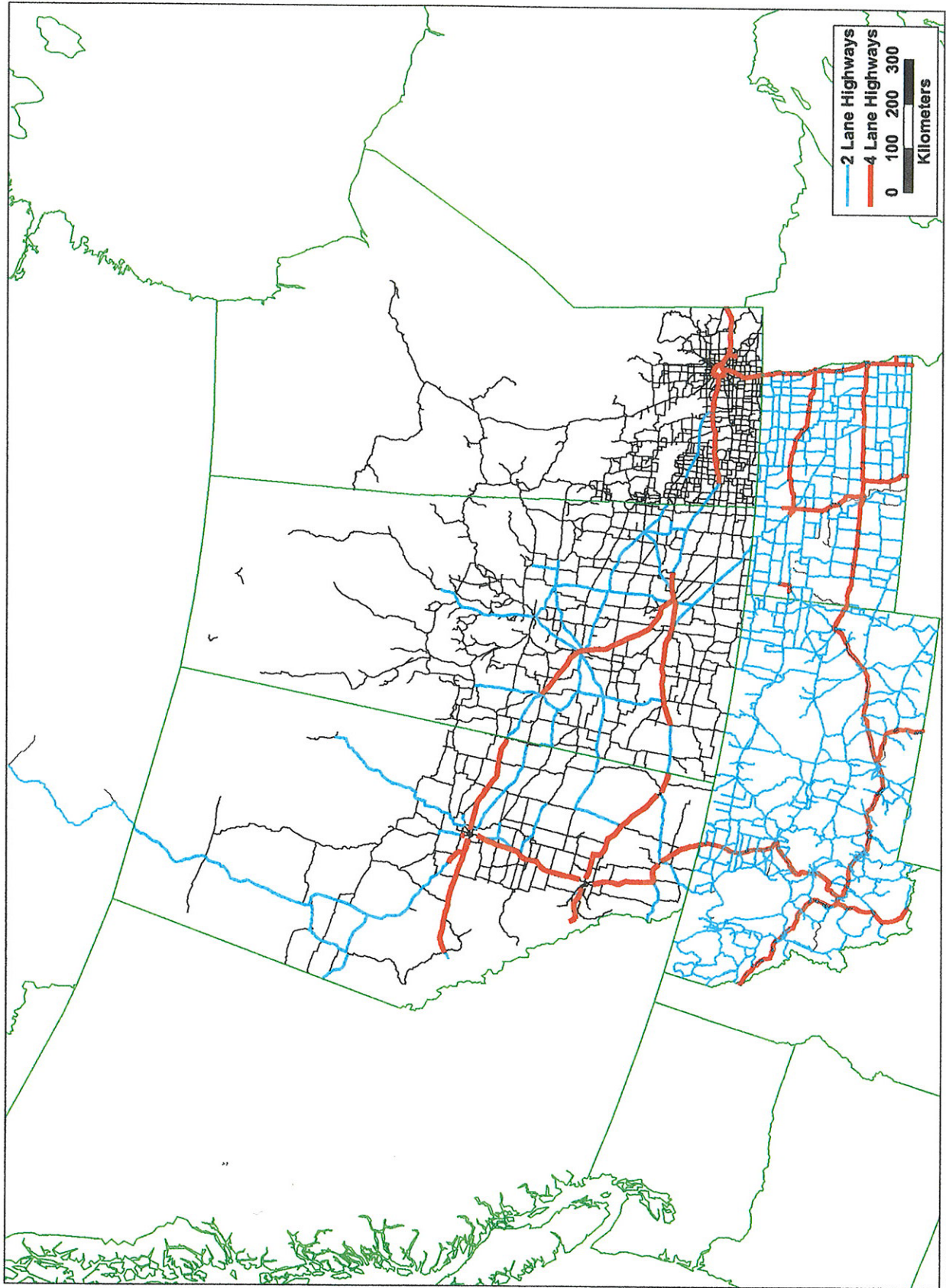
³ While B.C. and the Northwest Territories do allow limited use of LCV's these are on portions of highways that are essentially extensions of Alberta's highway system. Companies operating LCV's in these jurisdictions would also have permits in Alberta. We have therefore not included the B.C. and NMT totals in this report.

⁴ The only triple permit was given to CP Express and Transport and that permit expired when the company ceased its operations in Quebec.

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) effectively froze the LCV network as of June 1, 1991. At that time 21 states allowed the use of at least one form of LCV's. Exhibit 4 indicates current use of LCV's by state.

There is an important definition difference between Canada and the United States regarding LCV's (Nix, 1995). In Canada, long trucks represent only an increase in configuration length or an increase in the number of trailers (from 2 to 3). There is no increase in weight. In the United States, the permit for an LCV can also represent an increase in weight over limits set for regular operations. This means that information about LCV use in the United States cannot be extrapolated to Canadian conditions without qualification. In Canada, LCV's are used only for low-density freight, whereas in the United States, some LCV's are used for freight that in Canada is better suited to other trucks.

Exhibit 3: Rocky Mountain Double Network within the Prairie Region

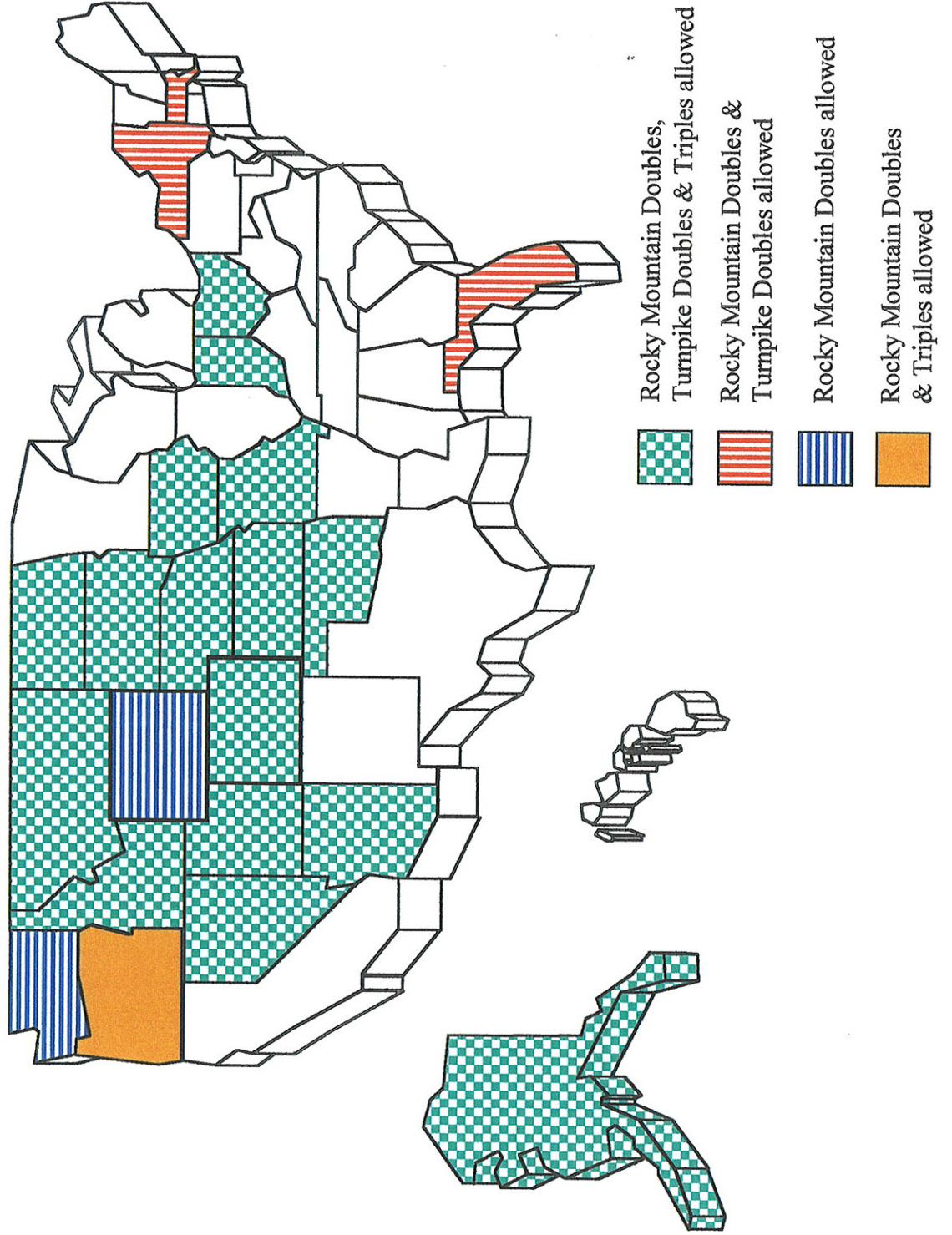


(c) JUMTIG 2003
pe-trans:\lcv\projecteshydro\gl\CV_network_prairie_mt_nd.lay

Source: Clayton et al, 2003

Exhibit 4:

Longer Combination Vehicles - State Operations



3.0 Conditions of Usage.

LCV's are allowed to operate through special permits that specify a number of conditions regarding their use. These include, but are not necessarily limited to highways they can be operated on, time of day and time of year, and driver experience. Appendix B indicates typical agreements under which LCV's must operate in Alberta and Saskatchewan.

Some of the key restrictions imposed on LCV operations in Canada are summarized below.

3.1 Speed

In Alberta, the speed of LCV's is limited to 100 km/h (or less if posted) even where the general limit is 110 km/h. Saskatchewan limits the speed to 90 km/h (or less if posted). This is reviewed with carriers by referencing their tachographs or on-board computers. For Alberta the speed limit is 100 km/h even where the posted speed is 110 km/h.

3.2 Driver Qualifications

Manitoba requires drivers to adhere to any safety requirements developed by the company safety supervisor.

Saskatchewan requires LCV drivers to have an Energy Efficient Motor Vehicle (EEMV) driver certificate. The driver also must:

- Have submitted a driver's abstract dated not more than one month prior to the issue date of the certificate. Abstracts shall have no driver-related Criminal Code violations in the prior 36 months, no more than two moving violations in the prior 12 months, and no more than 3 moving violations in the prior 36 months.
- Have attended and completed a Professional Driver Improvement Course within every 48 months.
- Have passed the Canadian Trucking Alliance Long Combination Vehicles Driver Training Course or equivalent and a recognized refresher course every 48 months.

In Alberta, a carrier must issue an LCV driver certificate to LCV drivers on an annual basis. Alberta requires the same driver qualifications as Saskatchewan. In addition, to obtain the certificate in Alberta the driver must have special training about current regulations, permit conditions, and issues governing LCV operations in the past 12 months.

In Quebec, the driver must have a minimum of 5 years experience driving a combination of vehicles and hold a "T" driver's license.

3.3 Weather and Road Conditions

Generally, LCV's are not allowed to operate during adverse weather or driving conditions. What constitutes these conditions is usually defined in the applicable provincial regulations. Turnpike doubles and triples are restricted to 4-lane divided highways.

3.4 Time Restrictions

Restrictions may be applied to cover restrictions in operation during holidays, specific seasons, peak traffic periods. These may be general in nature or route specific. In Quebec, road trains are prohibited between December 1 and March 1.

Many industry officials, regulators and researchers are of the opinion that the conditions of operation, such as those noted above, are major factors contributing to the safety performance of LVC's.

4.0 Key Performance Criteria

The concern for the safety of LCV's is derived from a number of their performance characteristics compared to a standard 5-axled tractor semi-trailer. The key performance criteria include: rearward amplification, braking, low speed offtracking, and high speed offtracking. Each of these is reviewed below.⁵ However, how each of these criteria actually affects safety in actual operations has not been quantified.

4.1 Rearward Amplification

For multiple-trailer combination vehicles, the rear trailer may exhibit an exaggerated, whiplike response to rapid steering, which may culminate in the overturning of the rear trailer. This phenomenon, known as rearward amplification, is a safety concern in obstacle avoidance or rapid lane changing at high speeds. Rearward amplification is a concern of doubles and triples but not for tractor semi-trailers or single unit trucks.

4.2 Braking

Two aspects of truck braking that affect traffic safety are stopping distance and vehicle control or stability during braking. Vehicle control or stability during braking depends upon the probability that wheels on one or more axle sets will lock up, which can lead to a jackknife or trailer swing for combination vehicles and a spin-out for single unit trucks. Multiple combination units tend to be more prone to this happening.

4.3 Low Speed Offtracking

When combination vehicle turn at intersections at low speed, the wheels of the rearmost axle follow a path to the inside of the path of the foremost axle. When low-speed tracking exceeds available road space at intersections, the turning trucks may encroach on adjacent traffic lanes, rear wheels may fall off the pavement, or the trucks may sideswipe roadside objects.

This problem is usually addressed in practice to limiting LVC operations to roads with intersections sufficient to allow their operation without the problems noted.

⁵ From TRB Special Report 225

4.4 High-Speed Offtracking

When combination vehicles turn at high speed, the wheels of the rearmost axle track outside the path of the frontmost vehicle, a condition known as high-speed offtracking. Excessive high-speed offtracking can be a safety concern for trucks turning at high speeds. For example, when trucks negotiate freeway exit ramps at high speeds, the tires of the rear axles may strike the curb because of their outboard path, an impact that may cause a rollover. Also, when a long truck is travelling on a curve at highway speeds, its rear portions could conceivably sideswipe other vehicles travelling in adjacent lanes or fixed objects on the roadside.

Again, in practice this can be dealt with by limiting LCV operation to routes where the roadway geometry does not pose a problem in this regard.

It should be noted that driver skill and experience has a role to play in the safety of LCV's in relation to the performance characteristics noted above. In this regard, TRB Special Report 226 notes the following:

“Evidence from the literature underscores the importance of the driver in precipitating or preventing accidents. For example, trucks with basically good handling and stability properties may have poor safety records if they are operated by inexperienced drivers or drivers with unsafe driving records. On the other hand, experienced drivers with good judgement can safely operate trucks with less-than-ideal stability thresholds or in adverse environmental conditions. Defensive driving can avoid situations in which trucks approach instability, thereby preventing many accidents caused by instability.”

5.0 Safety

Safety of LCV's has been, and continues to be a most contentious issue. Various studies have shown that LVC's are safer or not as safe as other trucks. There are many difficulties to resolving this issue. Some of the more serious include (Nix, 1995)

- Accurate data are difficult to obtain, particularly where the precise nature of the truck configurations of interest.
- Exposure data is most difficult to obtain especially where it accurately reflects the travel of different types of truck configurations.
- Comparisons of accident rates are only valid if all other factors are held equal or accounted for. In the case of LCV's, one difficulty is that they are frequently used on higher class (lower risk) highways with better (lower risk) drivers making a comparison with accident rates for other trucks difficult.

Following are the findings of a number of studies that have examined the safety of LCV's and multiple-trailer trucks.

Alberta Transportation, 1985

"A true safety picture cannot be established. What is known accurately is that the longer truck combinations are less prone to collisions than average trucks. But the good record is not attributable to the actual configurations as much as to the strict controls placed by the carriers and by the road authorities. As confirmed time after time throughout the Turnpike study, the use of experienced and skillful drivers compensated for some of the weaknesses of the truck's capability."

Transportation Research Board Special Report 225, 1990

Section 158 of the Surface Transportation and Uniform Relocation Assistance Act of 1987 called upon the Transportation Research Board (TRB) of the national Research Council to conduct a study of various proposals for changes in truck weight regulations. Safety considerations were part of the investigations.

The following table summarizes their review of existing literature.

Table 1: Summary of total accident rates (fatal plus nonfatal) of existing doubles and tractor semi-trailers from earlier studies. .

Study	Environment	Years of Data	Involvement-Rate Ratio Doubles to Semitrailers
TRB 1986	Synthesis of prior research on rural highways	Pre-1984, fatal and non-fatal	0.79 to 1.2
FHWA 1987	Rural Highways in Iowa	1983 - 1986	0.80 - 1.17
Jovanis et al 1989	Paired analysis by matching trucks on the same routes	1983 - 1985	1.41
Stein and Jones 1988*	Interstate highways in the state of Washington	1984 - 1986	2.5 - 3.0

*The TRB report notes that subsequent data collection for exposure indicated that Stein and Jones underestimated exposure for the doubles by a factor of 2.8 to 3.5. Use of the updated exposure produces ratios similar to those obtained by the other studies.

One of the key findings of this portion of the overall study was that *“Existing five-axle doubles have fatal involvement rates 10 percent higher than tractor semi-trailers when both are operated under similar conditions.”*

Transportation Research Board Study 227, 1990 (Turner Proposal)

Based on a literature review, this report concluded *“accident involvement rates per mile travelled for doubles are slightly higher than those for tractor-trailers when both are operated under similar circumstances.”*

The Turner proposal study committee concluded that the ratio for double-trailer trucks it recommended would be 1.09 if the doubles were equipped with standard A-frame dollies. However, the accident rates would be nearly equal if the doubles were equipped with a type of dolly that eliminates one articulation point (the B-Train configuration.)

Lyles et al. 1991⁶

A 1991 study of the relation of accident involvement rates to configuration is noteworthy for several reasons; the state has some of the most liberal size and weight regulations in the United States; care was taken to collect accurate and detailed data on fatal and non-fatal accidents and truck-VMT; the population of trucks studies is diverse (all Michigan registered tractors operating on all Michigan roads); and the analysis attempts to control

⁶ As reported in TRB, 2002

for factors believed to be potentially important influences on accident risk, including road class, time of day, urban and rural conditions, and driver age. Accident data are from state police accident files, and travel data are based on a telephone survey of Michigan registered tractors.

The study revealed no consistent difference between accident involvement rates for single- and double-trailer configurations. In contrast, rates varied greatly by road class: those for non-limited access highways were typically 2 to 3 times higher than those for limited access highways, and those for local streets and roads were typically 7 to 10 times higher than those for limited-access highways. Tractors operated by drivers aged 19 to 20 were found to have an accident involvement rate 5 times the average.

Western Highway Institute, 1992⁷

The Western Highway Institute (1992) published a guide for the operation and regulation of longer combination vehicles. The guide states that the safety records of LCV's are "impressive". According to state and toll road authorities, LCV's have "markedly superior safety records measured against miles travelled compared to those of any other kind of truck configuration". This record is due to the high safety standards, special engineering and testing, rigorous permit regulations, and operational restrictions (route and weather) that govern LCV use.

U.S. General Accounting Office, 1992

Based on a review of previous U.S. studies on LCV safety the authors include:

"Existing studies that examine the accident rates of multiple-trailer trucks have reached widely different conclusions concerning the safety of LCV's. For example, some studies have found that multiple-trailer trucks are less likely to be involved in accidents than single-trailer trucks, while other studies have shown that multiple trailer trucks are more likely to be involved in accidents. Weaknesses in the data used and different study approaches contributed to the different results. Most studies contained little specific information on LCV's and therefore reported primarily on non-LCV trucks with twin 28-foot trailers, which are allowed to operate nationwide and have some of the same operational characteristics as LCV". Thus the safety of LCV's is still largely unknown."

US FHWA, 1993

This study collected data from 1983 to 1991 from 13 states covering 46 billion miles of travel by single trailer and multiple trailer trucks. It is noted that only a portion of these multiple trailer trucks would be LCV's. It was concluded that the multiple trailer trucks have a better safety record than single trailer trucks but much of this is due to the multiple trailer trucks operating on better class roads. After adjustment for this, it was concluded that single trailer and multiple trailer trucks have similar collision rates as follows:

⁷ From Clayton et al, 2003

Vehicle Type	Collision Involvement Rate	
	Fatal	Non-fatal
Single trailer	2.43	31.28
Multiple trailer	2.44	28.02

Nix, 1995

Accident data were collected from the three largest long truck jurisdictions in Canada, (Alberta, Saskatchewan and Quebec. There were 10 long truck accidents in 1991 and 13 in 1992 with one involving a fatality. Through a survey of fleets operating LCV's exposure data was collected for a one week period, these were converted to accident rates of 14.7 (1991) and 19.1 (1992) per 100 million kilometres (23.6 and 30.7 per hundred million miles. As noted by the author, these accident rates must be used with caution as they are based on one week of exposure data extrapolated to the entire year. These accident rates are similar to those in the United States.

Overall, he noted concluded there is no evidence that long LCV's pose a particular safety hazard. He also noted that as LCV's move more freight per kilometre of travel they have lower exposure rates. Therefore, if their accident rates were the same as other trucks, then they would be involved in fewer accidents per unit of freight carried.

Titcatch et al, 1996⁸

Titcatch et al examined accident rates of LCV's and non-LCV's by obtaining mileage and accident data from 75 commercial motor carriers in 17 states. The data were for the period 1989 – 1994 for a total of 2.8 billion miles and 4, 518 accidents. LCV's included Rocky Mountain Doubles, Turnpike Doubles, and Standard Doubles when GVW exceeded 80,000 lbs and triples. Table 2 shows the main results.

Overall, LCV's have a much lesser accident rate and injury accident rate than non-LCV's and about the same fatal accident rate. Most accidents occurred on arterial (non-interstate roads). It seems that information about exposure by type of road was not available. If so, the differences noted by the following table are the joint reflection of the type of vehicle and the road on traveled.

Vehicle Type	Accidents/10 ⁶ miles		Deaths/10 ⁶ miles	Injuries/10 ⁶ miles	
LCV	0.88	Turnpike	1.02	0.025	0.14
		Rocky Mountain	0.79		
		Triple	0.83		
Non-LCV	1.79		0.027	0.30	

⁸ From on a literature review by Ezra Hauer (undated)

Braver et al, 1997⁹

This study examined the crash involvement rate of singles and doubles on interstate highways in Indiana. The study followed the case control study used earlier by Stein and Jones (1998) but to do so with new data and avoiding the potential bias or inaccuracy of the earlier study. The configuration of all tractor-trailers passing a crash site during a 30-minute time slot (same day of week and time of day as crash) was noted.

The authors conclude: *“among all crashes combined, no excess involvement of double-trailer vehicles in crashes was observed relative to what was expected; double-trailer vehicles actually were under involved, albeit non-significantly, in crashes.”*

The result obtained does not reflect only the difference in vehicle properties between singles and doubles. There are also differences in the fleet size of carriers operating singles and doubles, type of motor carrier (private or common), and driver age. The authors express the opinion that the relatively safe operation of the doubles in Indiana *“may have been attributable to their driver and carrier characteristics rather than their inherent properties.”*

FHWA, 1999

Following analysis of LCV's involved in fatal crashes the following conclusion was reached *“based on the existing data, LCV's do not appear to be considerably more or less safe than other combination trucks. A more definitive conclusion could be reached only after further collection of data and additional analysis.”*

Trialpha, 2000

Trialpha Consulting Limited was retained by the Saskatchewan Highways and Transportation in January 2000 to undertake the Special Haul programs safety review.¹⁰ Through a review of the Special Haul Programs records, as well as cross-referencing with the Saskatchewan Government Insurance collision database, the analysis found that a total of 7 collisions occurred in 1999 involving a truck operating in Special Haul programs at the time of the collision.

A review of the collisions indicated that in none of the cases was the truck size or weights the cause of the collision. Of the 7 collisions, 3 involved animals. These are common for all vehicle types in the province. Three of the collisions were with another vehicle. In all 3 cases the other driver was charged, with the truck being struck by the other vehicle. A

⁹ Ibid

¹⁰ Trucks that exceed standard size or weight limits, or LCV's

total of 3 injuries were involved. One of the collisions was a single vehicle accident, a roll-over attributed to the driver falling asleep and driving off the road.

From records maintained by the companies in the program, the collision rate for the Special Haul Programs fleet was determined to be 0.15 collisions per million vehicle-kilometres. This rate was estimated to be one-fifth that of the provincial total for the normal fleet.

The authors further noted that the Special Haul Programs resulted in an estimated one-third reduction in the amount of truck travel that would otherwise be required to haul the same amount of product. At the collision rates noted this could result in 18 fewer truck collisions annually.

Woodroffe and Ash, 2001

This study identified the additional tractor semi-trailer travel that would occur if the LCV program were eliminated. Based on the provincial average collision rate for tractor semi-trailer operations, an increase of 67 truck collisions was calculated.

Thompson, 2002¹¹

In a presentation given at the Commercial Vehicle Operations seminar, C-TEP University of Calgary, Thompson reviews the safety experience of LCV's in Alberta. Between 1995 and 1998, LCV's were involved in 37 crashes, two of which were fatal. Of these crashes, none of the fatal or major injury incidents were found to be the fault of the LCV driver. It was shown that for a given amount of product, the use of LCV's rather than 5-axle semi-trailers reduced the number of potential collisions by almost 90 percent.

TRB, 2002

Studies conducted over the past 20 years have not shown that tractor semi-trailers are a safer means of carrying freight than multi-trailer configurations. Past TRB committees that reviewed the research concluded that the safety difference is small. The body of research includes studies that use data for diverse regions, kinds of trucking operations, vehicle configurations and road environments. The research most commonly reflects experience with twin-trailer configuration (i.e., shorter double-trailer configurations weighing less than 80,000 lb), but the results of studies that include experience for larger doubles are not inconsistent with this general conclusion. The body of past research is inadequate to provide a complete picture of the relative safety of double trailer combinations, the combined effects of weight and configuration, and the effectiveness of countermeasures.

¹¹ from Clayton et al, 2003

The past TRB studies concluded that the differences in accident involvement rates among the truck types evaluated are smaller than the differences in vehicle capacity and the vehicles they would replace, so involvement rates per unit of truck freight services would decline. In these studies, therefore, the predicted changes in vehicle miles travelled dominates the aggregate safety effect; that is, accident losses decrease in projections in which distance travelled decreases.

6.0 Summary

While accident involvement rates of LCV's are clearly less than those of single trailer trucks in general operations¹², the LCV's are operated on higher quality road and normally with more experienced drivers. Taking these factors into account makes the relative safety of these vehicles, on a per mile basis less clear. After addressing these differences, several studies conclude that LCV's have similar or slightly higher accident involvement rates compared to single trailers. However, some studies show LCV's with better accident involvement rates. Some studies have shown LCV's to have higher fatal accident involvement rates, which the researchers attribute to the higher mass of the larger vehicles.¹³

Overall, it would appear that there is little difference in accident involvement rates of LCV's and other trucks when operated under similar conditions of weather, road and driver experience. However, the use of LCV's means fewer kilometres of travel (reduced exposure), compared to single trailer vehicles to move the same volume of freight¹⁴. For example, a turnpike double would require 50% of the vehicle kilometres to move the same volume of freight; Rocky Mountain Doubles about 63% and triples about 58%. When these exposure factors are taken into account, LCV's exhibit lower accident involvement rates than standard trucks, assuming constant freight demand.

¹² The available Canadian data indicates the collision rates of LCV's to be about one-fifth that of tractor semi-trailers when the tractor semi-trailers operate on a system wide basis under normal operating conditions.

¹³ This may be less of an issue in Canada as LCV's do not have higher weight limits than other vehicles covered by general regulations.

¹⁴ The use of LCV's may mean moving freight previously moved by rail or traffic generated due to reduced shipping costs. If either of these circumstances were to occur then adjustments in the relative exposure rates would be required. In Canada, many of these vehicles operate where there is no rail service.

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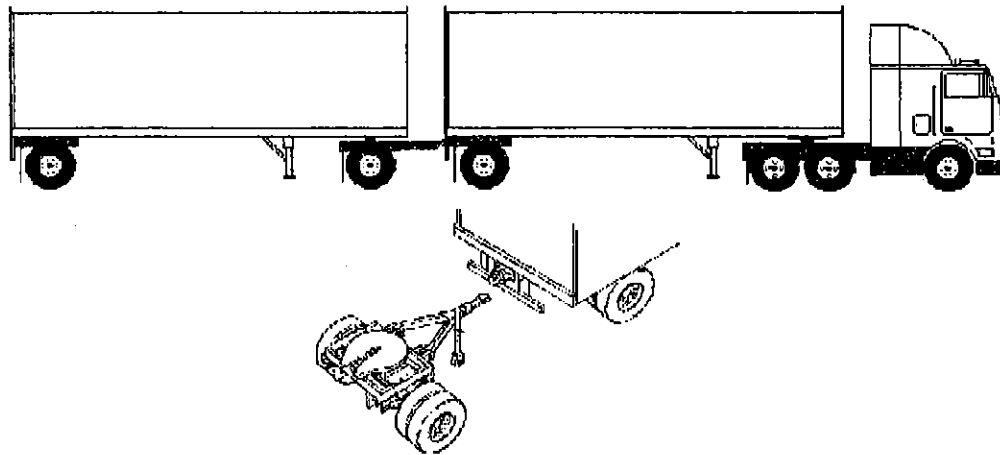
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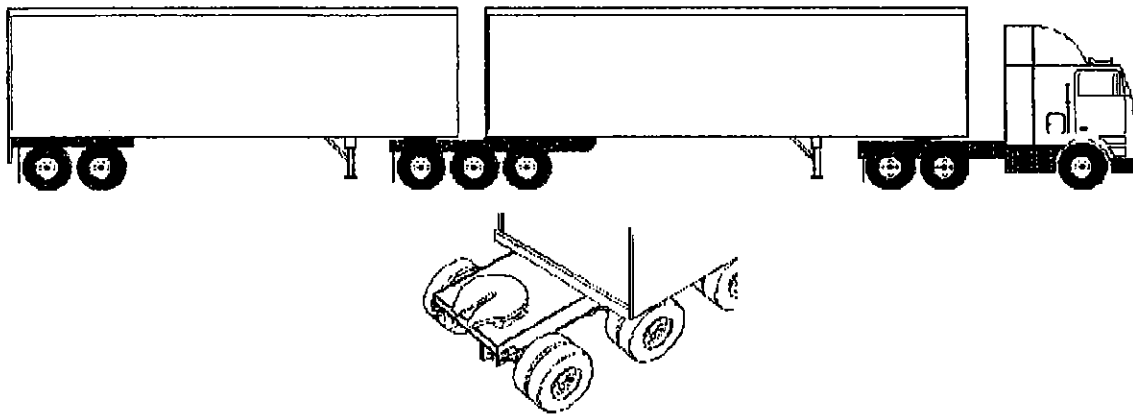
APPENDIX A:

ILLUSTRATIONS OF CONNECTOR DOLLY TYPES

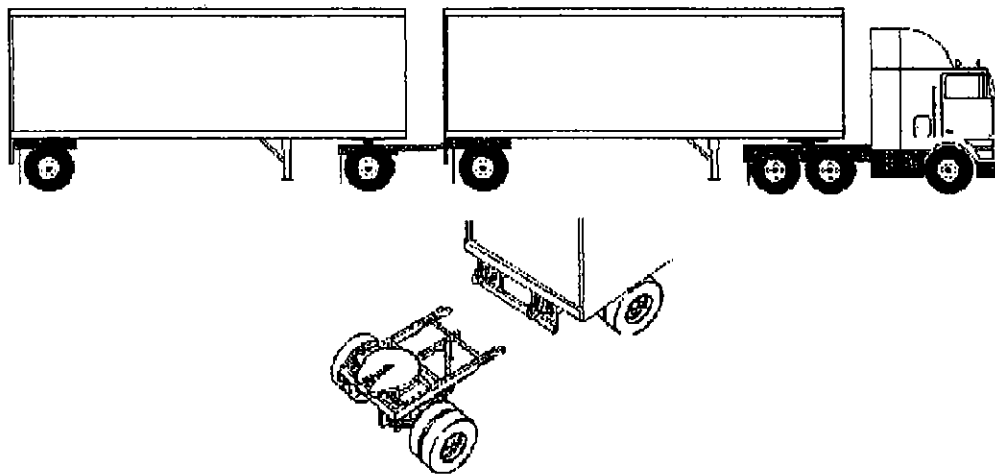
A Train - Units connected by a type "A" converter dolly



B Train - No converter dolly required, second unit connects to extended frame of lead unit



C Train - Units connected by a type "C" converter dolly



Source: "Vehicle Weights and Dimensions Study - Technical Steering Committee Report", Canroad Transportation Research Corporation, Ottawa, Canada 1987

APPENDIX B:

SAMPLES OF LCV PERMIT CONDITION DOCUMENTS

ALBERTA AND SASKATCHEWAN

If a permit has been issued pursuant to Section 62 of the Traffic Safety Act authorizing the movement of Long Combination Vehicles (LCV's), any and all of the following conditions shall apply in addition to any other conditions specified on the permit.

A. General Provisions

1. That the company and/or permittee shall, upon request of any authorized employee of Alberta Transportation or any peace officer, allow and assist such employee or peace officer to make any inspection, test, examination or inquiry as such member may wish to make in regard to the operation of these trailer combinations.
2. That the company shall abide by the routes, vehicle dimensions, equipment and conditions specified on, attached to or referred to by the permits as well as all applicable legislation unless specifically exempted on the permit or permit attachments.
3. That the company shall carry a copy of the appropriate permit in each power unit.
4. That, upon request, the company will supply to Transport Engineering Branch, Alberta Transportation, any reasonable statistics related to LCV operations.
5. That the company will submit to Transport Engineering Branch, Alberta Transportation (phone 403-340-5189 or fax 403-340-5092) the police report number for any reportable collision involving an LCV within one week of the date of occurrence.
6. That the company ensure, and be able to provide proof, that their drivers and driver trainers meet and maintain the requirements outlined in the Canadian Trucking Alliance's "Longer Combination Vehicle Driver's and/or Instructors Manual".
7. That the carrier is responsible to issue an annual LCV Driver's Certificate. The Driver's Certificate is valid for a period of 12 months after the date of issue and must be in the possession of the driver at all times when operating an LCV. Prior to issuing an LCV Driver's Certificate, the carrier must ensure the driver meets the following qualifications:
 - (a) Holds a valid Class 1 driver's license or equivalent.
 - (b) Has passed a recognized air brake course.
 - (c) Has a minimum of 24 months or 150,000 km of driving experience with articulated vehicles.
 - (d) Has passed a recognized driver's medical examination within the past 24 months. An Alberta Class 1 driver's license issued within the past two years is deemed to satisfy this requirement.
 - (e) Has passed a Professional Driver Improvement Course within the past 48 months.
 - (f) Has passed the Canadian Trucking Alliance's "Longer Combination Vehicles Driver Training Course", or equivalent.
 - (g) The driver's abstract, dated not more than one month prior to the issue date of the Drivers Certificate, must show no driving-related criminal code convictions in the prior 36 months; no more than 2 moving violations in the prior 12 months; and no more than 3 moving violations in the prior 36 months. The date of conviction and the current date will be the dates used to determine time periods.
 - (h) In the past 12 months the driver has been instructed on all current regulations, permit conditions and issues covering the operation of LCV's.
8. Upon request, the company must be able to produce all documents to support the driver's qualifications.
9. Driver's Certificates issued by other jurisdictions, which meet or exceed the Alberta requirements, will be accepted as valid for the term of this agreement.

B. Instructor Qualifications

1. The Instructor must be certified as a Driver Trainer in their home jurisdiction and be qualified to instruct the CTA Longer Combination Vehicle Driver Training Course.

C. Equipment Requirements

1. The equipment must carry a valid CVIP decal or recognized equivalent.
2. All trucks must feature a maximum gross weight to power ratio of 160 kg per horsepower (120 kg/kW).
3. All equipment used in extended length combinations shall be equipped with brakes that meet CMVSS 121 Standards. Converter dollies do not require spring brakes.
4. The rear axle group of the power unit and all axle groups of the trailers and converters must be equipped with mud flaps or splash guards that are constructed to ensure that they remain in a rigid downward position at all times. All mud flaps or splash guards shall be mounted behind the wheels at a distance not exceeding 25.0 cm to the rear of the wheels.
5. The trailers of the combination shall be joined together by means of no-slack pintle hook(s), equipped with an air or hydraulic ram. The no-slack ram is to be incorporated in either the pintle hook or the pintle hook eye of the coupling apparatus.

D. Operational Requirements

1. Where a route falls within a city boundary, the company is responsible for obtaining permission from cities to operate extended length combinations into and out of such cities in accordance with the routes and conditions assigned by the city.
2. Any breakup or makeup of extended length combination units must be done off public roadways on private property or as directed by an authorized Alberta Transportation staff member or peace officer.
3. LCV's shall not operate during adverse weather or driving conditions (including but not limited to rain, snow, sleet, ice, smoke, fog or other conditions) which:
 - a) Obscure or impede the driver's ability to drive in a safe manner, or
 - b) Prevent the driver from driving with reasonable consideration for the safety of persons using the highway.

The company is required to make a reasonable effort to determine the driving conditions on the route. Vehicles must not be dispatched when adverse conditions are known to be present on the route. Drivers encountering unexpected adverse conditions must stop at the next safe location (or as directed by an authorized Alberta Transportation staff member or a peace officer) and wait for the adverse conditions to abate.

4. The vehicles in a combination shall be so loaded and coupled together as to ensure that any such combination travelling on a level, smooth, paved surface will follow in the path of the towing vehicle without shifting, swerving, or swaying from side to side over 10 cm to each side of the path of the towing vehicle when it is moving in a straight line.
5. Drivers shall avoid crossing opposing lanes of traffic unless absolutely necessary.
6. Maximum speed shall be the lesser of 100 km/h or the posted speed limit.
7. This permit cannot be combined with any other permit for overwidth, overheight, overhang, or overweight.

E. Hours of Operation

Operation will be allowed 24 hours per day except in the following cases:

1. On all Highways, movement will not be allowed
 - (a) after 4:00pm on December 24 and December 31,
 - (b) at anytime on December 25 and January 1,
 - (c) from 4:00pm to 8:00pm on December 26.

2. On Multi-lane Highways, within 40 km of the city limits of the cities of Calgary and Edmonton:
 - (a) For weekends with no special holiday on the Friday or the Monday, movement will not be allowed
 - travelling outbound from 4:00pm to 8:00pm on Friday, and
 - travelling inbound from 4:00pm to 8:00pm on Sunday.
 - (b) For a long weekend when a special holiday falls on a Friday, movement will not be allowed
 - travelling outbound from 4:00pm to 8:00pm on the preceding Thursday, and
 - travelling inbound from 4:00pm to 8:00pm on the Sunday.
 - (c) For a long weekend when a special holiday falls on a Monday, movement will not be allowed
 - travelling outbound from 4:00pm to 8:00pm on the Friday, and
 - travelling inbound from 4:00pm to 8:00pm on the Monday.

3. On Two-lane Highways
 - (a) For weekends with no special holiday on the Friday or the Monday, movement will not be allowed from 4:00pm to 8:00pm on Friday and from 4:00pm to 8:00pm on Sunday.
 - (b) For a long weekend when a special holiday falls on a Friday, movement will not be allowed from 4:00pm to 8:00pm on the preceding Thursday and from 4:00pm to 8:00pm on Sunday.
 - (c) For a long weekend when a special holiday falls on a Monday, movement will not be allowed from 4:00pm to 8:00pm Friday and from 4:00pm to 8:00pm on the Monday.
 - (d) NOTE: 3(a), (b), and (c) above do not apply to Highway 35.
 - (e) In addition to sections (a), (b), and (c), movement will not be allowed on individual two-lane highways as follows:

<u>Highway</u>	<u>Location</u>	<u>Hours</u>	<u>Days</u>
28	Jct. 28A to Jct. 63	7:00am to 9:00am 4:00pm to 7:00pm	Mon – Sat
28A	Edmonton to Jct. 28	7:00am to 9:00am 4:00pm to 7:00pm	Mon – Sat

- From the Friday before the Victoria Day Weekend (May) to the Tuesday following the Labour Day Weekend (September):

<u>Highway</u>	<u>Location</u>	<u>Hours</u>	<u>Days</u>
15	Edmonton to Jct. 21	7:00am to 11:00pm 7:00am to 11:00pm 10:00am to 10:00pm	Mon – Fri Saturday Sunday
3	AB/BC border to Jct. 22	12:00 to 5:00pm	Fri & Sat
22	Jct. 1 to Jct. 1A	1:00pm to 3:00pm 1:00pm to 8:00pm	Saturday Sunday

- From the Tuesday following the Labour Day Weekend (September) to the Thursday before the Victoria Day Weekend (May):

<u>Highway</u>	<u>Location</u>	<u>Hours</u>	<u>Days</u>
15	Edmonton to Jct. 21	8:00am to 7:00pm 10:00am to 7:00pm 12:00pm to 7:00pm	Mon - Fri Saturday Sunday

F. Special Holidays

1. "Special holiday" means Good Friday, Victoria Day, Canada Day, August Civic Holiday, Labour Day, Thanksgiving Day, and Remembrance Day.

G. Turnpike Double and Triple Trailer Routes

1. All multi-lane highways with four or more driving lanes
2. Hwy. 1A from the Calgary City Limits east to Jct. Hwy. #1
3. Hwy. #11A from Hwy. #2 east to Gaetz Avenue, Red Deer, except between 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. on weekdays.
4. Hwy 4 at Milk River.

H. Extended Length Double and Rocky Mountain Double Routes

1. All multi-lane highways with four or more driving lanes
2. The following two lane highways:

<u>Highway</u>	<u>Section</u>	<u>Highway</u>	<u>Section</u>
1A	Calgary to Jct. 22 Jct. 1 (Chestermere) to Calgary	14	Edmonton to Sask. border
2	USA boundary to Jct. 5 Jct. 642 to Jct. 18 Jct. 49 (West of Donnelly) to Jct. 43 (North of Grande Prairie)	15	Edmonton to Jct. 45 (South of Bruderheim)
2A	Jct. 2 (Leduc) to Jct. 2 (near Morningside)	16	West of Hinton to East Jasper Park Gates
3	All	17	Jct. 14 South to the Sask. border
4	USA boundary to Lethbridge	18	Jct. 2 to Westlock
5	Jct. 2 to Lethbridge	22	Jct. 1 to Jct. 1A
9	Jct 36 to Saskatchewan	28	Jct. 28A to Jct. 63
11A	Jct. 2 to Gaetz Avenue (Red Deer)	28A	Edmonton to Jct. 28
12	Jct. 36 to Jct. 2	35	Jct. 2 to NWT border
13	Jct. 2A to Camrose	36	Jct. 1 to Jct. 9
		43	Jct. 16 to BC border
		49	Jct. 43 (Valleyview) to Jct. 2 (West of Donnelly)
		63	Jct. 28 to Ft. McMurray
		69	Jct. 63 to South Industrial Park in Ft. McMurray

Or additional routes as may be indicated on the permit.

I. Specific Conditions for Rocky Mountain Doubles



The following lists specific requirements for the equipment. Dimensions or weights, where not specifically listed, shall conform to the Alberta Commercial Vehicle Dimension and Weight Regulation (AR 315/2002) for A, B or C trains.

PARAMETER	LIMIT	LIMIT	LIMIT
	A Converter	B Converter	C Converter
Overall Length	Max 31 m	Max 31 m	Max 31 m
Trailer One			
Length (box length)	Min 12.2 m	Min 12.2 m	Min 12.2 m
Wheelbase	Max 12.5 m	Max 14.0 m	Max 12.5 m
Hitch Offset*:			
Trailer length 12.2 - 13.7 m	Max 1.8 m	n/a	Max 1.8 m
Trailer length > 13.7 m	Max 2.8 m	n/a	Max 2.8 m
Converter Dolly			
Drawbar Length	Max 4.65 m	n/a	Max 2.0 m**
Max Number of Axles	2	n/a	1
Trailer Two -- legal dimensions			
Overall Gross Vehicle Weight	Max 53,500 kg	Max 63,500 kg	Max 60,500 kg

Note 1: In all cases, the lead semi-trailer of the configuration must be heavier than the second trailer or semi-trailer.

Note 2: An empty converter dolly may be towed behind the combination so long as the overall length does not exceed 31.0 meters and the dolly is equipped with all legally required lights and equipment.

Trailer two may be used as the lead semi-trailer providing the following conditions are met:

- trailer two is heavier than trailer one and
- only "B" or "C" converters will be allowed on any approved two lane highway.
- "A" converters will be allowed on all tumpike/triple trailer routes.

* Tridem axle groups, because of the hitch offset requirements, are very difficult to fit into A and C train lead trailers less than 13.7 metres in length. Note that hitch offset is generally not a concern on B trains and tridem axle groups are easily accommodated.

** The 2.0 metre maximum drawbar length is applicable to "C" converters manufactured in 1993 or later, in accord with the compliance requirements to the CMVSS under the Motor Vehicle Safety Act, Canada

J. Specific Conditions for Extended Length Doubles

The following lists specific requirements for the equipment. Dimensions or weights, where not specifically listed, shall conform to the Alberta Commercial Vehicle Dimension and Weight Regulation (AR 315/2002) for A, B or C trains.

PARAMETER	LIMIT		
	A Converter	B Converter	C Converter
Overall Length	Max 31 m	Max 31 m	Max 31 m
Trailer One			
Length (box length)	Min 10.0 m	Min 10.0 m	Min 10.0 m
Hitch Offset*:	Max 1.8 m	n/a	Max 1.8 m
Converter Dolly			
Drawbar Length	Max 4.65 m	n/a	Max 2.0 m**
Max Number of Axles	2	n/a	1
Trailer Two --			
Length (box length)	Min 10.0 m	Min 10.0 m	Min 10.0 m
Overall Gross Vehicle Weight	Max 53,500 kg	Max 63,500 kg	Max 60,500 kg

Note 1: In all cases, the lead semi-trailer of the configuration must be heavier than the second trailer or semi-trailer.

Note 2: An empty converter dolly may be towed behind the combination so long as the overall length does not exceed 31.0 meters and the dolly is equipped with all legally required lights and equipment.

* Tridem axle groups, because of the hitch offset requirements, are very difficult to fit into A and C train lead trailers less than 13.7 metres in length. Note that hitch offset is generally not a concern on B trains and tridem axle groups are easily accommodated.

** The 2.0 metre maximum drawbar length is applicable to "C" converters manufactured in 1993 or later, in accord with the compliance requirements to the CMVSS under the Motor Vehicle Safety Act, Canada

K. Specific Conditions for Turnpike Doubles



The following lists specific requirements for the equipment. Dimensions or weights, where not specifically listed, shall conform to the Alberta Commercial Vehicle Dimension and Weight Regulation (AR 315/2002) for A, B or C trains.

PARAMETER	LIMIT	LIMIT	LIMIT
	A Converter	B Converter	C Converter
Overall Length	Max 38 m	Max 38 m	Max 38 m
Lead Semi-trailer			
Length (box length)	Min 12.2 m	Min 12.2 m	Min 12.2 m
Wheelbase	Min 9.5 m Max 12.5 m	n/a Max 14.0 m	Min 9.5 m Max 12.5 m
Hitch Offset*: Trailer length 12.2 m to 13.7 m Trailer Length > 13.7 m	Max 1.8 m Max 2.8 m	n/a n/a	Max 1.8 m Max 2.8 m
Converter Dolly			
Drawbar Length	Max 4.65 m	n/a	Max 2.0 m**
Maximum number of axles	2	n/a	1
Second Semi-trailer or Full Trailer			
Length	Min 12.2 m	Min 12.2 m	Min 12.2 m
Wheelbase	Min 9.5 m Max 12.5 m	Min 8.25 m Max 11.5 m	Min 9.5 m Max 12.5 m
Maximum Gross Vehicle Weight			
5 Axle	41,900 kg	40,700 kg	41,900 kg
6 Axle	49,800 kg	48,600 kg	49,800 kg
7 Axle	57,700 kg	56,500 kg	57,700 kg
8 or more Axles	63,500 kg	63,500 kg	63,500 kg

Note 1: In all cases, the lead semi-trailer of the configuration must be heavier than the second trailer or semi-trailer.

Note 2: Turnpike doubles may include a tridem axle group on the second (full) trailer.

Note 3: An empty converter dolly may be towed behind the combination so long as the overall length does not exceed 38.0 meters and the dolly is equipped with all legally required lights and equipment.

Note 4: Tridem axle groups, because of the hitch offset requirements, are very difficult to fit into A and C train lead trailers less than 13.7 metres in length. Note that hitch offset is generally not a concern on B trains and tridem axle groups are easily accommodated.

** The 2.0 metre maximum drawbar length is applicable to "C" converters manufactured in 1993 or later, in accord with the compliance requirements to the CMVSS under the Motor Vehicle Safety Act, Canada

L. Specific Conditions for Triple Trailer Combinations



The following lists specific requirements for the equipment. Dimensions or weights, where not specifically listed, shall conform to the Alberta Commercial Vehicle Dimension and Weight Regulation (AR 315/2002) for A, B or C trains.

PARAMETER	LIMIT	LIMIT	LIMIT
	A Converter	B Converter	C Converter
Overall Length	Max 35 m	Max 35 m	Max 35 m
First Converter Dolly			
Drawbar Length	Max 4.65 m	n/a	Max 2.0 m*
Maximum number of axles	2	n/a	1
Overall Gross Vehicle Weight	53,500 kg	53,500 kg	53,500 kg

Note 1: In all cases, the lead semi-trailer of the configuration must be heavier than the second trailer or semi-trailer and the third trailer or semi-trailer is the lightest.

Note 2: An empty converter dolly may **not** be towed behind a triple trailer combination.

* The 2.0 metre maximum drawbar length is applicable to "C" converters manufactured in 1993 or later in accord with the compliance requirements to the CMVSS under the Motor Vehicle Safety Act, Canada.

**ENERGY EFFICIENT MOTOR VEHICLE OPERATING AGREEMENT
(EEMV)**

BETWEEN:

SAMPLE - COMPANY NAME

- and -

**HER MAJESTY THE QUEEN
IN RIGHT OF THE PROVINCE OF SASKATCHEWAN**
as represented by the Minister of Highways and Transportation

Agreement No. Sample

November, 2001

ENERGY EFFICIENT MOTOR VEHICLE OPERATING AGREEMENT

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**ENERGY EFFICIENT MOTOR VEHICLE OPERATING AGREEMENT
(EEMV)**

BETWEEN:

SAMPLE AGREEMENT - COMPANY NAME
herein referred to as the "Company"

- and -

Her Majesty the Queen in and for the Province of Saskatchewan,
acting through and represented by the Minister of Highways and Transportation,
herein the "**Minister**"

In consideration of the terms and conditions set out below the parties agree as follows:

Section I
Vehicle and Haul Routes

- 1.1 Subject to the conditions of this Agreement and those specified in an approved Truck Haul Operating Plan (THOP) as contemplated by Section 5.1 hereof and to the extent permitted by law, the Minister will, on the application of the Company or its nominee or nominees, grant and issue to the Company or to its nominee or nominees, overdimension permits (hereinafter referred to as the "**Truck Haul**").
- 1.2 All vehicles proposed by the Company for the Truck Haul shall conform to the dimensions and not exceed the maximum weights specified in the THOP.
- 1.3 All highways proposed by the Company for the Truck Haul must be approved by the Minister. All such highways will be identified on the permit and may be in the THOP. The permissible hours of operation on such highways will also be identified on the permit and may be in the THOP.

Section II
Permits and Fees

- 2.1 For each such overdimension permit, the Company and its nominee or nominees, shall pay to the Minister, the appropriate fee referred to in the Extended Term Overweight Permit Section currently contained in *The Driver and Vehicle Registration Fee Regulations, 1987* chapter H-3.1, regulation 1 (as may be revised from time to time) and the fee referred to in *The Automobile Accident Insurance Regulations, 1981* (as may be revised from time to time).
- 2.2 Nothing herein contained shall have the effect of exempting the Company or its nominee or nominees from payment of any and all fees, licenses, rates and assessments which may be payable by law from time to time by users of public roadways and highways in the Province of Saskatchewan nor does it exempt the Company or its nominee or nominees from any and all provincial statutes including ban orders and regulations governing users of public roadways and highways except for exemptions permitted by law and specified in this Agreement.
- 2.3 It is hereby understood and agreed that:
- (a) permits issued pursuant to this Agreement shall be subject to such conditions as the Minister imposes;
 - (b) if the Company, or any carrier or carriers retained by the Company is in the view of the Minister, violating the terms or intent of this Agreement any or all permits issued to such carrier may be suspended for a period of time which is deemed to be appropriate by the Minister.
- 2.4 All vehicles working on the "Truck Haul" must carry a valid permit issued by the Minister.
- 2.5 If at any time in the Minister's opinion the vehicles operated under permits pursuant to this Agreement are creating a safety hazard for the travelling public, then the Company and the Minister will jointly agree to measures that will eliminate the hazard. All permits may be withdrawn until such Agreement is reached and the measures implemented.

Section III
Driver Qualifications

- 3.1 The Company will ensure that all persons operating overlength vehicles on the Truck Haul:
- (a) meet the qualifications specified in the THOP;
 - (b) comply with the conditions specified in the THOP; and
 - (c) comply with all applicable federal and provincial laws, including The Highway Traffic Act, the Motor Carriers Act, and The Vehicle Administration Act except to the extent he/she is lawfully exempted from compliance by this Agreement.
- 3.2 The Company shall make the relevant sections of the THOP available to all drivers operating overlength equipment pursuant to the terms of this Agreement.

Section IV
General Operating Conditions, Vehicle
Specifications and Maintenance Requirements

- 4.1 The Company will comply with the Operating Conditions specified in the THOP.
- 4.2 All vehicles working on the "Truck Haul" must meet the specifications contained in the THOP prior to the Company requesting permits.
- 4.3 All accidents involving vehicles operating pursuant to this Agreement that are of a significant nature (vehicle upset, personal injury or death) or are caused by mechanical failure will be reported to a contact person at the Department by telephone or fax as soon as possible. Contact persons are those listed in Appendix 9901 to the THOP, as amended from time to time. This preliminary report will be followed by a written report on a standard Department form describing the accident and, if possible, the cause.
- 4.4 It is hereby agreed that both parties may jointly continue to develop other vehicles or mode alternatives in an effort to improve the economic and energy efficiency of the transportation system. All such development will take into consideration the safety of the vehicle operator as well as the general public.

Section V
Agreement Termination and Other Matters

- 5.1 The parties agree that specific vehicle configurations, vehicle weights and dimensions, haul routes and all other special operating terms and conditions, shall be set forth in a THOP. The initial THOP is set forth as Schedule 1 hereto. A THOP may be amended or replaced by the Minister or by an official of the Department designated by the Minister on 30 days notice. If any amendment to the THOP or replacement THOP is unacceptable to the Company, the notice of amendment or replacement shall be deemed to be a notice to terminate the Agreement by the Minister pursuant to clause 5.7.
- 5.2 This Agreement shall take effect to the benefit of and be binding upon the parties hereto and their successors and assigns, providing that no assignment by the Company shall be binding on the Minister without the consent in writing of the Minister to such assignment first being had and obtained.
- 5.3 The Company will undertake and assume full responsibility for the Truck Haul and will indemnify and save harmless the Government of Saskatchewan, its officers and employees and the Minister from and against all actions, causes of actions, claims and demands which may arise as a result of the Truck Haul.
- 5.4 The Minister reserves the right to change the requirements specified in this Agreement and the THOP or to temporarily suspend or restrict permits if, in the Minister's view, such action is in the public interest.
- 5.5 It is hereby agreed that the Company will ensure that drivers working for and on their behalf to comply with the terms and conditions of this Agreement and those specified in the THOP.
- 5.6 In the event of any conflict between any provision of this Agreement and any schedule hereto, the provisions of this Agreement shall prevail.
- 5.7 This Agreement shall commence on the date of signing and can be terminated upon 30 days written notice by either party. All Permits issued pursuant to this Agreement shall terminate upon the expiration or termination of this Agreement.

- 5.8 It is agreed that this written instrument embodies the entire Agreement of the parties hereto with regard to the matters dealt with herein, and that no understanding or agreements, verbal or otherwise, exist between the parties except as herein expressly set out.
- 5.9 The provisions of this Agreement and any schedules hereto, replace the provisions of all previous Overlength Vehicle Operating Agreements between the Province of Saskatchewan and the Company, and any amendments thereto. In the event of any inconsistency between the provisions of the Agreement including any amendments thereto and this Agreement, the provisions of this Agreement shall apply.

Section VI

Delivery Of Notices

- 6.1 Any notice to be served by the Minister pursuant to this Agreement shall be deemed to be delivered on the third day after posting, by registered mail, postage prepaid to the Company's address.
- 6.2 Any notice to be served by the Company pursuant to this Agreement shall be deemed to be delivered on the third day after posting, by registered mail, postage prepaid to the Department at the address specified in the Appendix 9901 to the THOP, as amended from time to time.

Signed by the Minister and the proper officers of the Company with the intention that the Minister and the Company will be legally bound by this Agreement. The Agreement will be effective when signed by the parties.

**HER MAJESTY THE QUEEN, IN RIGHT OF
THE PROVINCE OF SASKATCHEWAN,
represented by The Minister of
Highways and Transportation**

SAMPLE - COMPANY NAME

Per: _____
William Cooke

Per: _____

TITLE Director

TITLE _____

Date: _____

Date: _____

SCHEDULE 1

TRUCK HAUL OPERATING PLAN (THOP)

SCHEDULE 1

100 INTRODUCTION

The THOP outlines the conditions under which annual permits will be issued and the truck haul allowed to operate. Questions regarding this plan should be directed to the Partnership Programs & Services Branch of Department of Highways and Transportation. A mailing address, fax and phone numbers are given in Appendix 9901.

200 OPERATING CONDITIONS

201 Dimensions and Maximum Weights

The vehicles for which the Minister may issue permits pursuant to section 1.1 of the EEMV Agreement are described in Appendix 9902.

All vehicles operating pursuant to permit must conform with the dimensions and must not exceed the maximum weights shown in Appendix 9902. Furthermore, when the vehicles are loaded the lead trailer and its load must be as heavy or heavier than the second trailer and its load and in triples the third trailer and its load must be the lightest trailer.

202 Haul Routes

The Minister intends to continue to issue permits pursuant to section 1.1 of the Energy Efficient Motor Vehicle Operating Agreement for vehicles which have a length up to 38 m to allow those vehicles to operate on the four lane divided highways identified as:

- a) Highway # 1 from Indian Head to Gull Lake; and
- b) Highway # 11 from Regina to Saskatoon.

Permits for the operation of vehicles up to 38 m in length on other two and four lane highways will be subject to the negotiation of a transportation partnership agreement within the meaning of *The Highways and Transportation Act, 1997*.

Permits for the operation of vehicles up to 31 m in length may be issued to allow those vehicles to operate on all four lane highways and on those two lane highways identified on the route map in Appendix 9903 and on the permit.

Permits for the operation of vehicles up to 31 m in length on other two lane routes will be subject to the negotiation of a transportation partnership agreement within the meaning of *The Highways and Transportation Act, 1997*.

203 Restricted Operating Hours

All overlength vehicles must be off the Highway System in accordance with the restrictions outlined Appendix 9903.

The hours of restriction shall be specified on the permit.

204 Ban Orders

Axle loadings for vehicles operated pursuant to this plan must comply with any Ban Order issued by the Minister.

205 Urban and Rural Municipalities

Prior to applying for permits the Company hereby agrees to make suitable arrangements with local municipalities for any roads they intend to use which are subject to or under municipal jurisdiction.

206 Vehicle Speeds

The speed of all vehicles operating pursuant to this plan shall not exceed 90 km/h or the posted or legal speed limit whichever is the lesser.

207 Vehicle Inspections

Each vehicle must display an inspection certificate issued pursuant to the Power Unit and Semi-Trailer Inspection Regulations or by other provinces that have a recognized vehicle inspection program. If the inspection certificate is invalid, the permit for that vehicle will also be invalid.

208 Monitoring Overlength Vehicles and Drivers

The Company shall, upon request of any authorized employee of the Department of Highways and Transportation, SGI, or Peace Officer, permit and assist such employee or Peace Officer to make any inspection, test, examination or inquiry as such person may wish to make in regard to the operation of the overlength combination.

209 Safety Supervisor

The Company shall have in their employ a person whose duty will be to oversee and direct the safe operation of all overlength units including the proper functioning of all equipment that is entailed in such operation. The Company will advise the Minister of the designated individual.

210 Highway Safety

The Company will do all things necessary to operate in a safe and efficient manner having due regard to weather conditions and other traffic, and refrain from operating when visibility is reduced to 1000 m or less, the highway is icy or heavily snow covered, or when the operation may otherwise pose a particular hazard.

211 Vehicle Evaluation

The Company will cooperate with the Minister in evaluating the economic advantages of using overlength combination units compared to other conventional transport units.

212 Staging Areas

The Company is responsible for obtaining and maintaining suitable staging areas at city limits for making up and separating overlength vehicles, should the Minister determine that such facilities are necessary.

213 Permits

To obtain permits, the Company must provide a current copy of the vehicle certificate of registration for the vehicle type. Additions, deletions, substitutions or other vehicle configurations can be used with the approval of the Minister. The Company shall maintain records for each trip, for vehicles with an overall length in excess of 25 metres. The Company shall record the following information and ensure such records are available to the Minister for audit purposes:

- (a) the license and unit number of the power unit;
- (b) the vehicle configuration;
- (c) the time and date of departure;
- (d) the origin and destination of each trip; and
- (e) operators name.

The above records will be retained for a minimum of six months.

300 EQUIPMENT SPECIFICATIONS FOR OVERLENGTH VEHICLES

The Company must ensure that all vehicles operating pursuant to this plan meet the minimum equipment specifications set out in Appendix 9904.

400 DRIVER REQUIREMENTS**401 Driver Qualifications**

The Company shall ensure that all drivers employed to operate vehicles on the truck haul meet the following requirements. The drivers must have:

1. A valid Class 1 driver's license with air endorsement;
2. An EEMV drivers certificate issued by the Company in a form approved by the Minister valid for a period of 12 months after the date of issue showing the following information;
 - (a) driver's name;
 - (b) Company's name;
 - (c) issue and expiry date; and
 - (d) signature and legibly printed name of the person issuing the certificate.
3. At least two years experience on combination trailer units or logged 150 000 km on articulated vehicles (semi-trailers as defined in the Regulations);
4. Prior to issuing an EEMV Driver's Certificate the driver shall have;
 - (a) submitted to the Company a driver's abstract dated not more than one month prior to the issue date of the Driver Certificate. Abstracts shall have no driver related criminal code violations in the prior 36 months and no more than two moving violations in the prior 12 months and no more than three such violations in the prior 36 months;
 - (b) submitted to the Company a satisfactory medical examination report for a Class 1 driver's license which is not more than 24 months old, resubmitting one every 24 months;
 - (c) attended and completed within every 48 months, a Professional Driver Improvement Course (PDIC) or other courses relevant to

vehicle operation on the Truck Haul and approved by the Minister;
and

- (d) on initial employment, must have passed the Canadian Trucking Association Long Combination Vehicles Driver Training Course as approved by the Minister, and thereafter passed a recognized refresher course every 48 months.

402 List of Drivers

The Company shall maintain a current listing of drivers authorized to operate vehicles under the terms of this Agreement. The driver list along with the appropriate driver qualification records will be subject to review by the Minister to confirm compliance.

403 Driver Briefing

The Company is responsible to ensure all drivers are aware of the procedures they must use when operating equipment pursuant to this Plan.

404 Driver Discipline

The Company will take appropriate action to discipline drivers who show flagrant disregard for the rules of the road, public safety, or the terms set out in this THOP. Any such discipline shall be documented on the driver's record and reported to the Minister.

405 Driver Certificates from other Jurisdictions

Driver certificates issued by other jurisdictions that meet or exceed the requirements in 401, will be accepted as valid for operating under the terms of this Agreement.

500 INSTRUCTOR QUALIFICATIONS

501 Before qualifying to instruct drivers to operate vehicles, that exceed 25 metres in length, pursuant to this plan, an instructor must:

- (a) be qualified to teach a recognized (PDIC);
- (b) have at least the qualification and driving experience required of drivers in subsection 401;

- (c) have corporate and supervisory experience and a letter of reference from their employer; and
- (d) have completed the Longer Combination Vehicles (LCV) Instructors Course developed by the Canadian Trucking Association and approved by the department.

APPENDIX 9901

MAILING ADDRESS and CONTACT PERSONS

APPENDIX 9901 MAILING ADDRESS AND CONTACT PERSONS

9901-1 Mailing Address

Partnership Programs and Services Branch
Saskatchewan Highways and Transportation
8th Floor - 1855 Victoria Avenue
Regina, SK S4P 3V5
Fax No.: (306) 798-0172

Contact Persons

Ray Gaetz
Trucking Programs Manager
Phone No.: (306) 787-1696

9901-2 Company Mailing Address

Sample Agreement - Company Names Ltd.
Address
CITY PROV POSTAL CODE

Phone:
Fax No

Contact Persons

Phone:
Fax No.

APPENDIX 9902

VEHICLE DIMENSIONS and MAXIMUM WEIGHTS

Includes –

I. TURNPIKE DOUBLES

- 1-A “A” Trains.....(1-6)
- 1-B “B” Trains.....(1-2)
- 1-C “C” Train Equipped With Self Steering “C” Dolly...(1)

II. ROCKY MOUNTAIN DOUBLES

- 2-A “C” Trains Equipped With Self Steering “C” Dolly...(1-4)
- 2-B Extended “B” Trains Equipped with Sliding Axle Assembly...(1-4)
- 2-C “A” Trains (1-20)

III. TRIPLE TRAILER UNITS

- 3-A “C” Train Equipped With Self Steering “C” Dollies...(1-3)
- 3-B “B” Train Equipped With Sliding Axle Assemblies....(1)

IV. QUEEN CITY TRIPLE TRAILER COMBINATIONS

- 4-A “C – C” Trains Equipped With Self Steering “C” Dollies....(1-4)
- 4-B “B – C” Trains Equipped With Sliding Axle Assembly and Self Steering “C” Dolly....(1-4)
- 4-C “B – B” Trains Equipped With Sliding Axle Assemblies....(1-2)
- 4-D “C – B” Trains Equipped With a Self Steering “C” Dolly and Sliding Axle Assembly.....(1-2)

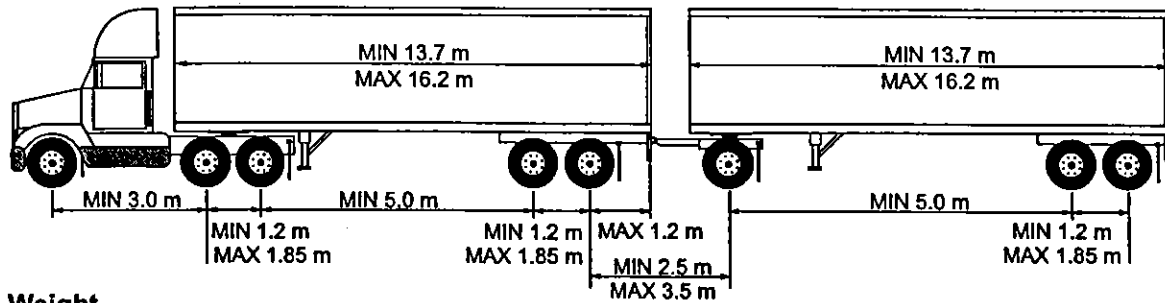
Insertion includes 22 pages



I. TURNPIKE DOUBLES

1-A. "A" Trains

1. Eight Axle, Single Axle Dolly Converter



Weight
5 500 kg

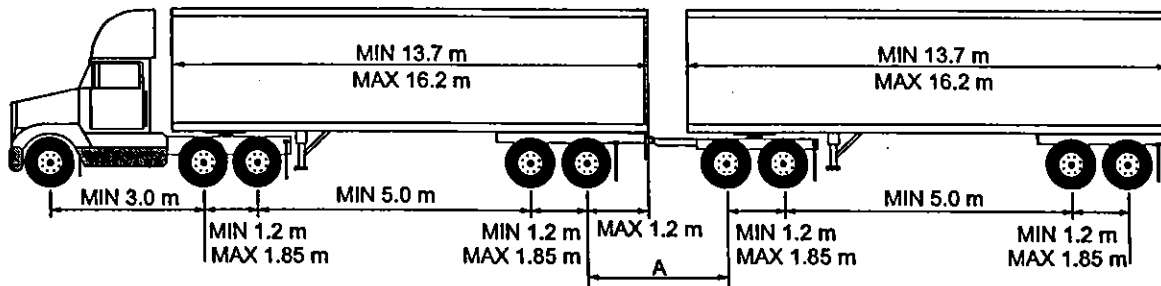
17 000 kg

16 000 kg 9 100 kg
23 000 kg

17 000 kg

MAX GVW
62 500 kg

2. Nine Axle, Tandem Axle Dolly Converter



Weight
5 500 kg

17 000 kg

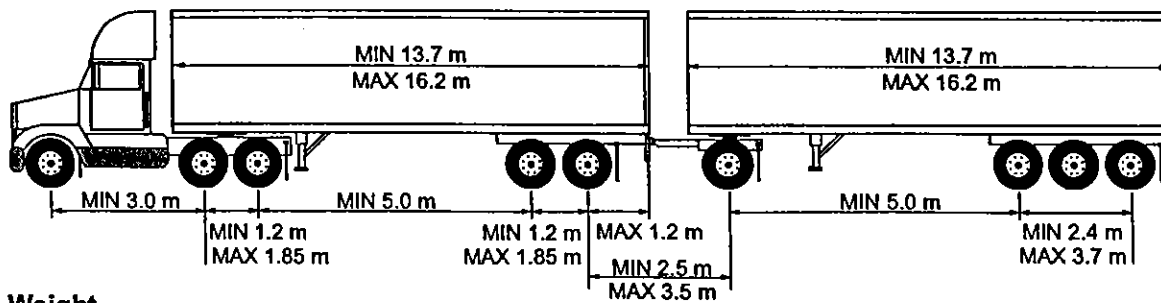
16 000 kg 16 000 kg

17 000 kg

MAX. GVW
62 500 kg

A = < 2.0 m = 23 000 kg
A = 2.0 m - 3.0 m = 24 000 kg
A = 3.0 m - 5.0 m = 28 400 kg

3. Nine Axle, Single Axle Dolly Converter



Weight
5 500 kg

17 000 kg

16 000 kg 9 100 kg
23 000 kg

9 100 kg

MAX GVW
54 600 kg

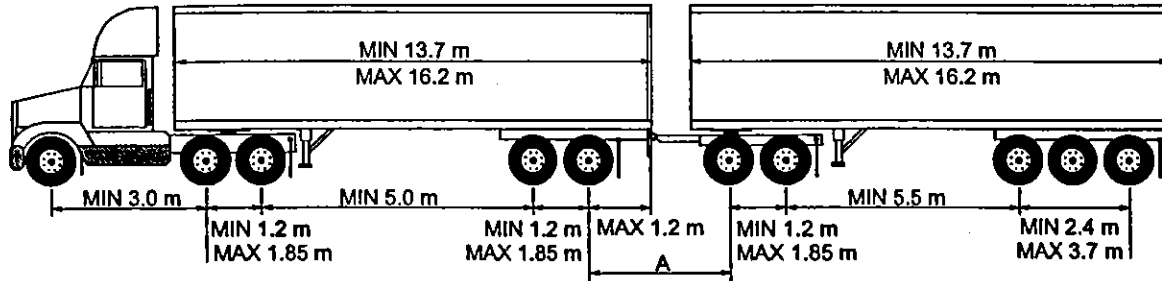
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**



I. TURNPIKE DOUBLES

1-A. "A" Trains cont'd

4. Ten Axle, Tandem Axle Dolly Converter



Weight
5 500 kg

17 000 kg

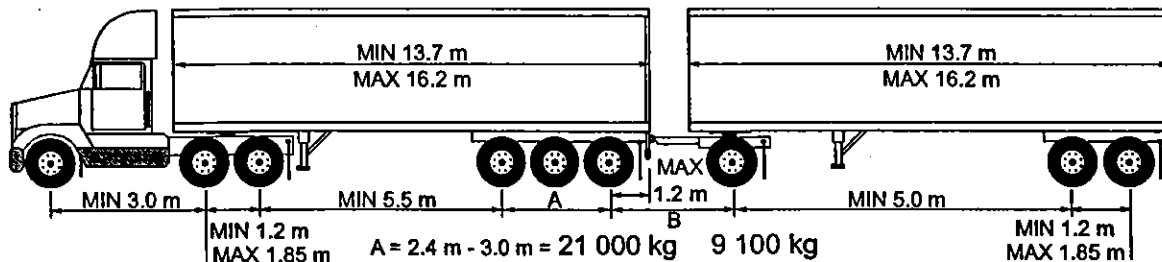
16 000 kg 16 000 kg

17 000 kg

MAX GVW
62 500 kg

A = < 2.0 m = 23 000 kg
A = 2.0 m - 3.0 m = 24 000 kg
A = 3.0 m - 5.0 m = 28 400 kg

5. Nine Axle, Single Axle Dolly Converter



Weight
5 500 kg

17 000 kg

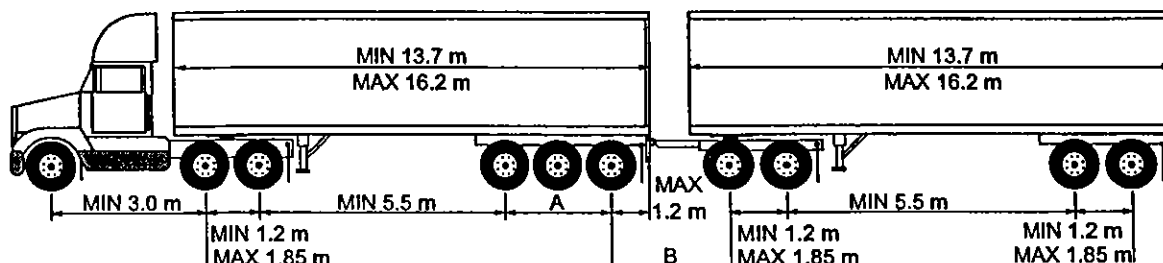
A = 2.4 m - 3.0 m = 21 000 kg 9 100 kg
A = 3.0 m - 3.6 m = 23 400 kg 9 100 kg
A = 3.6 m - 3.7 m = 24 400 kg 9 100 kg

17 000 kg

MAX GVW
62 500 kg

B = 2.4 m - 3.0 m = 24 000 kg
B = 3.0 m - 4.0 m = 26 400 kg
B = 4.0 m - 5.0 m = 29 500 kg

6. Ten Axle, Tandem Axle Dolly Converter



Weight
5 500 kg

17 000 kg

A = 2.4 m - 3.0 m = 21 000 kg 9 100 kg
A = 3.0 m - 3.6 m = 23 400 kg 9 100 kg
A = 3.6 m - 3.7 m = 24 400 kg 9 100 kg

17 000 kg

MAX GVW
62 500 kg

B = 2.4 m - 3.0 m = 24 000 kg
B = 3.0 m - 4.5 m = 30 000 kg
B = 4.5 m - 5.5 m = 35 000 kg

Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum

APPENDIX 9903

HAUL ROUTES

and

HOURS IN WHICH OPERATION OF EEMV's ARE RESTRICTED

Includes:

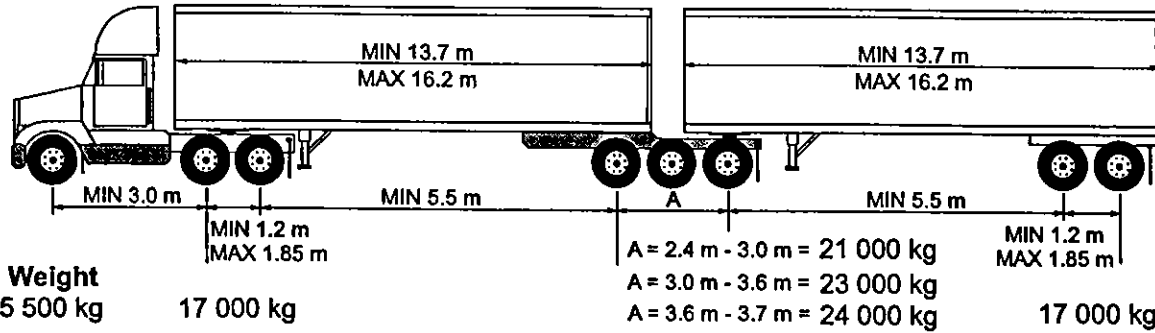
Hours of Allowable EEMV Operation Map.



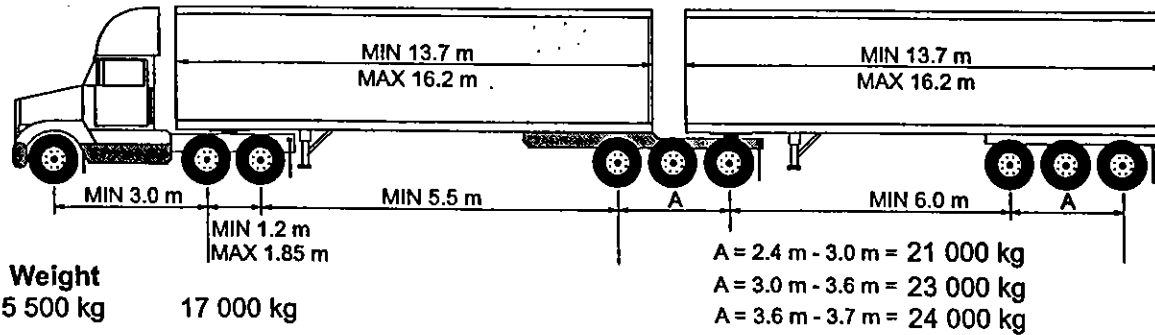
I. TURNPIKE DOUBLES

1-B. "B" Trains

1. Eight Axle, Extended "B" Train

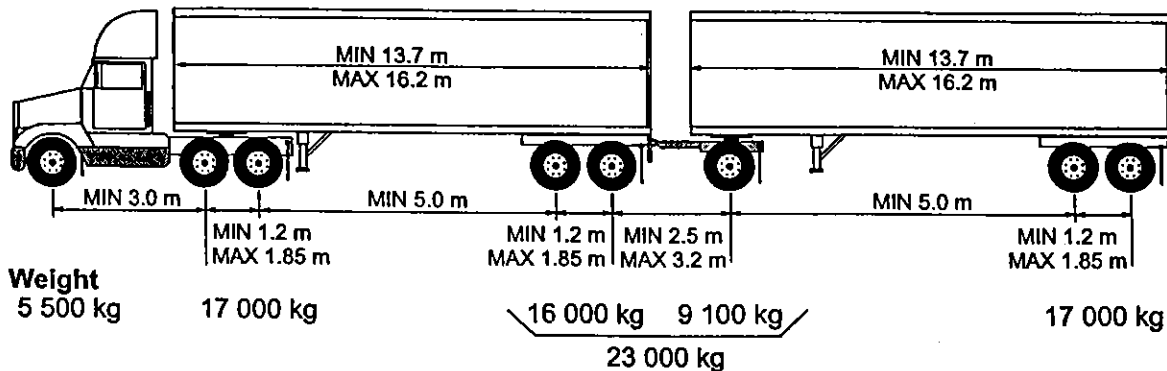


2. Nine Axle, Extended "B" Train



1-C. "C" Train Equipped With Self Steering "C" Dolly

1. Eight Axle, Single Axle Converter



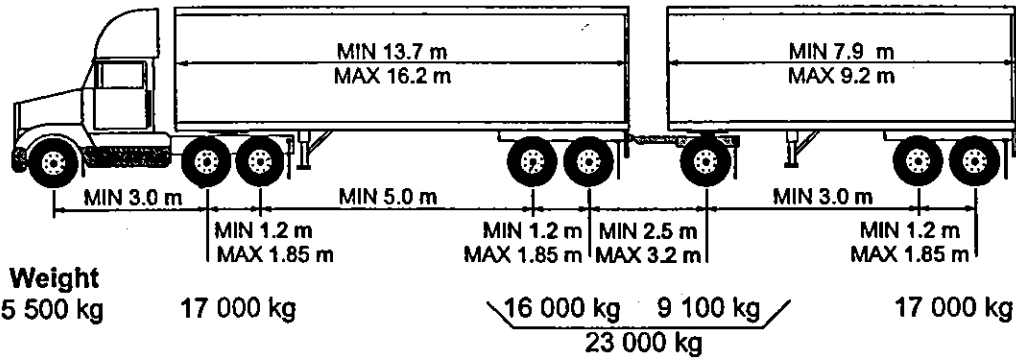
*Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum*



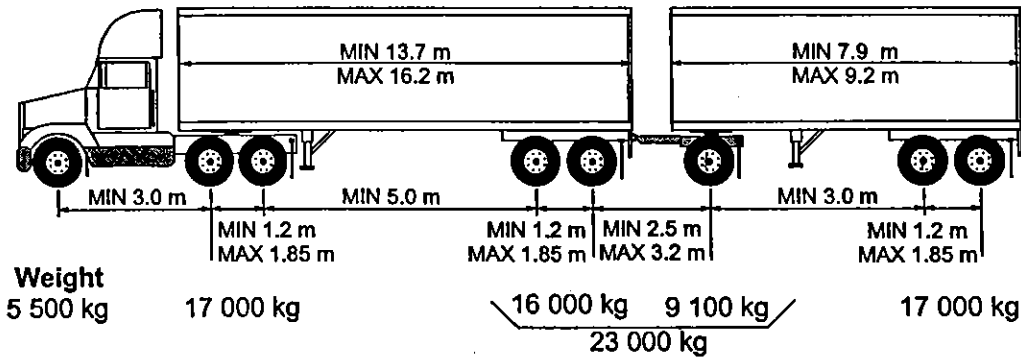
II. ROCKY MOUNTAIN DOUBLES

2-A. "C" Trains Equipped With Self Steering "C" Dolly

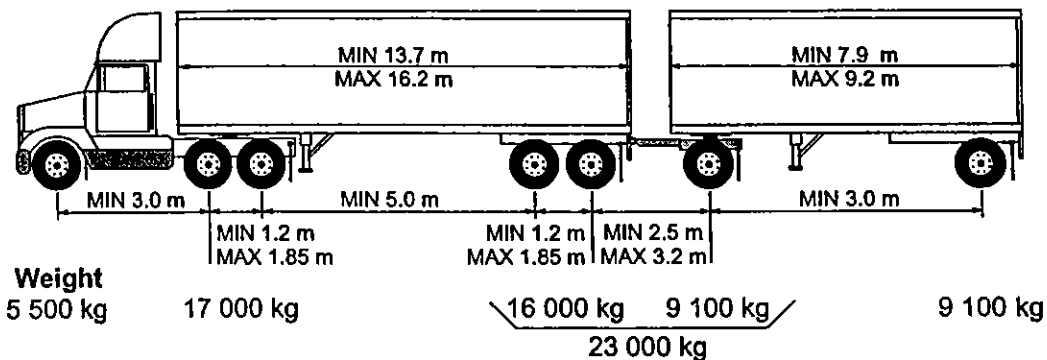
1a. Eight Axle, Tandem Axle Pup



1b. Eight Axle, Tandem Axle Pup [Clause 9904-12 (3)]



2. Seven Axle, Single Axle Pup



*Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum*

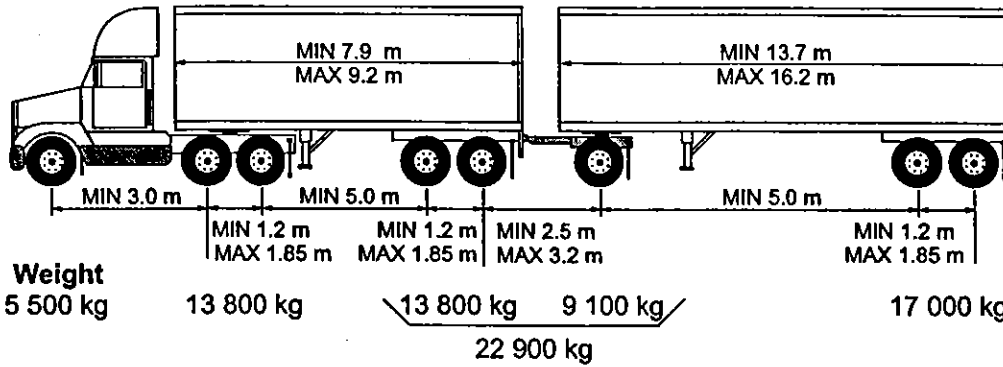


II. ROCKY MOUNTAIN DOUBLES

2-A. "C" Trains Equipped With Self Steering "C" Dolly cont'd

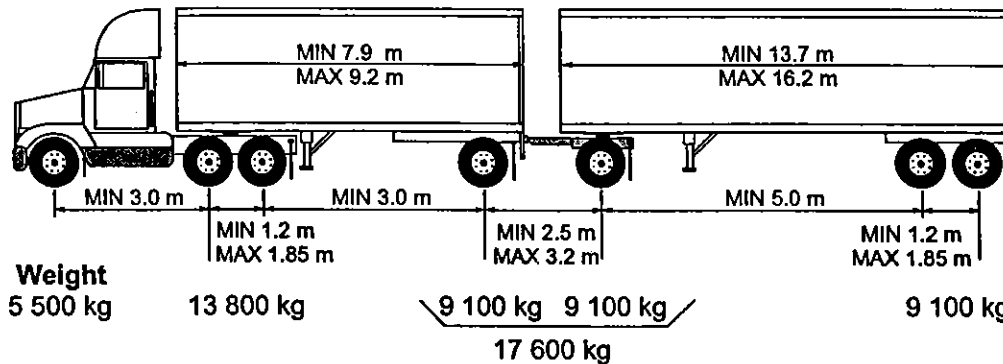
3. Eight Axle, Reverse Rocky Mountain Double

(Note: Lead trailer must be tandem)



4. Seven Axle, Reverse Rocky Mountain Double

(Note: Second trailer must be empty)



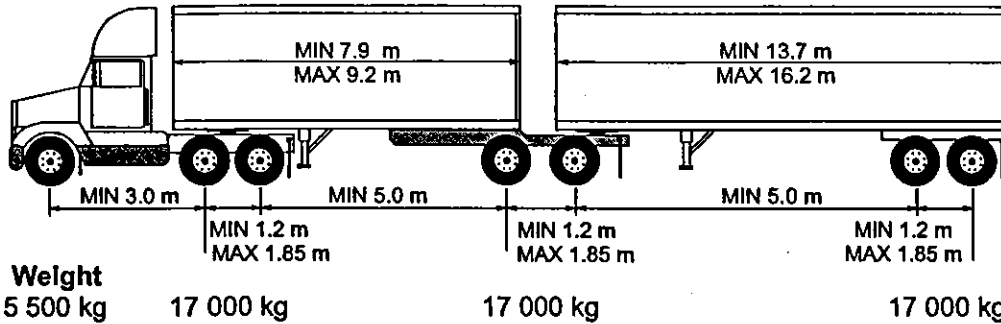
Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum



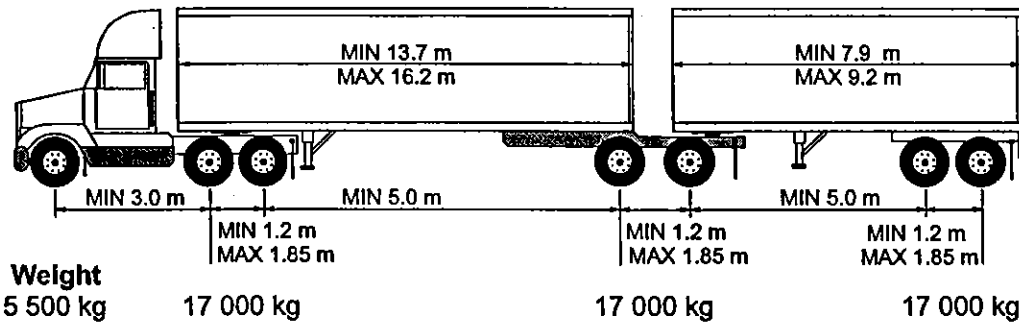
II. ROCKY MOUNTAIN DOUBLES

2-B. Extended "B" Trains Equipped With Sliding Axle Assembly

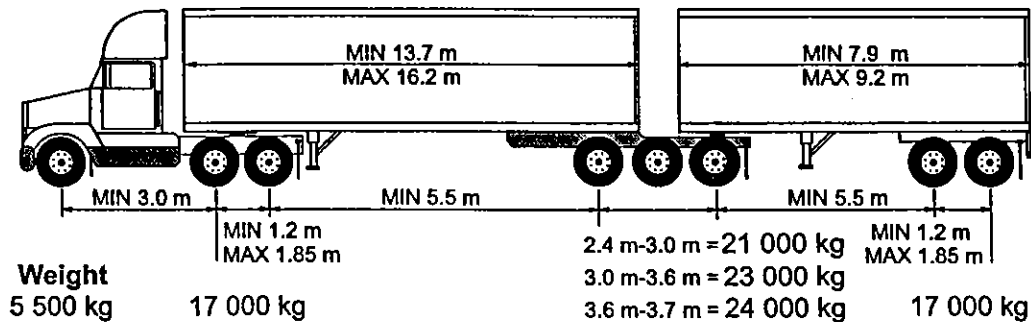
1. Seven Axle, Trailers Reversed



2. Seven Axle, Tandem Axle Pup



3. Eight Axle, Tandem Axle Pup

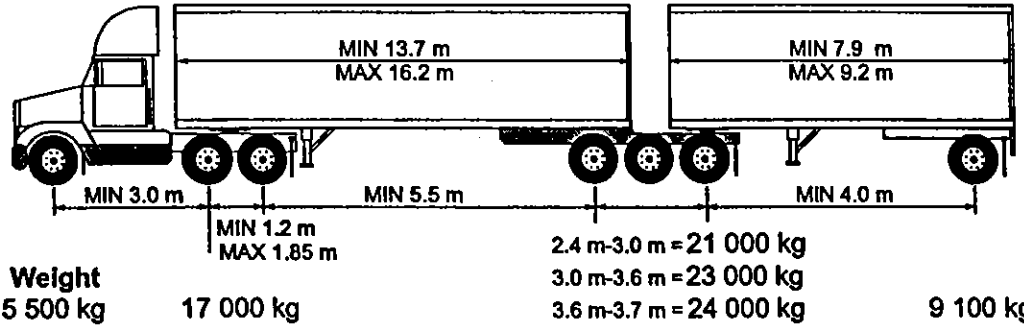


**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum**



II. ROCKY MOUNTAIN DOUBLES

2-B. Extended "B" Trains Equipped With Sliding Axle Assembly cont'd 4. Seven Axle, Single Axle Pup



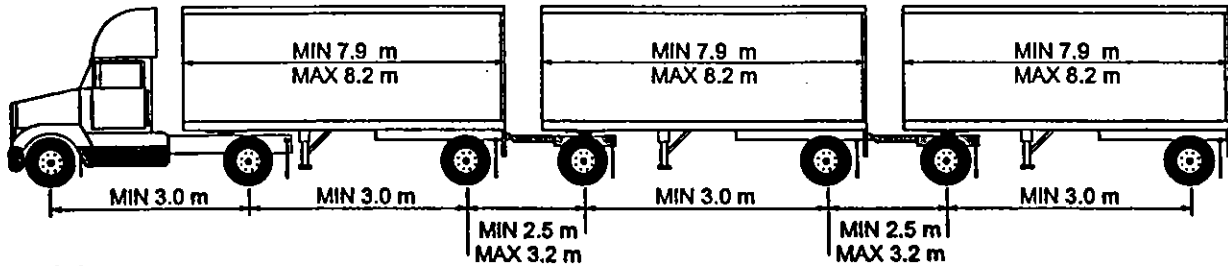
*Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum*



III. TRIPLE TRAILER UNITS

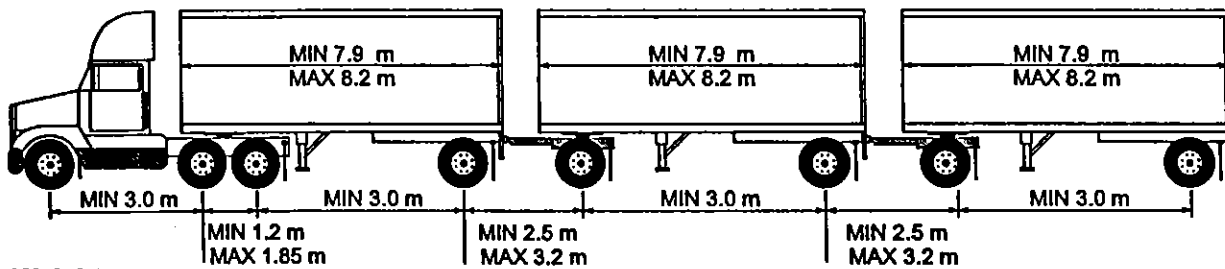
3-A. "C" Train Equipped With Self Steering "C" Dollies

1. Single Axle Power Unit, Single Axle Trailers



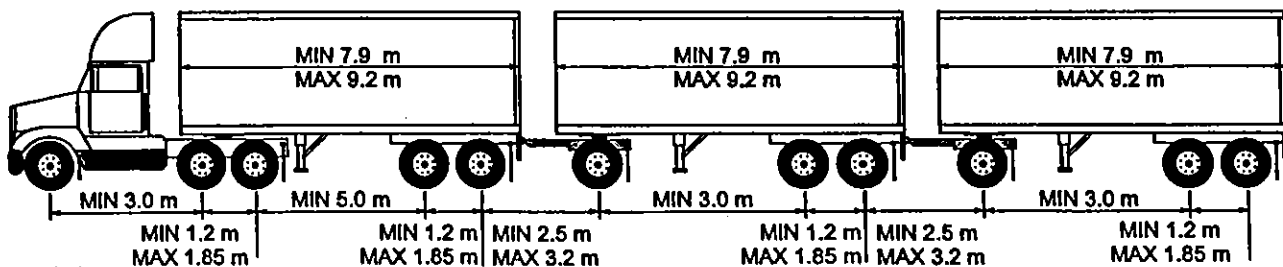
Weight	5 500 kg	9 100 kg	9 100 kg	9 100 kg	9 100 kg	9 100 kg	9 100 kg	MAX GVW
		17 600 kg		17 600 kg				53 500 kg

2. Tandem Axle Power Unit, Single Axle Trailers



Weight	5 500 kg	16 000 kg	9 100 kg	9 100 kg	9 100 kg	9 100 kg	9 100 kg	MAX GVW
			17 600 kg		17 600 kg			53 500 kg

3. Tandem Axle Power Unit, Tandem Axle Trailers



Weight	5 500 kg	16 000 kg	16 000 kg	9 100 kg	16 000 kg	9 100 kg	16 000 kg	MAX GVW
			23 000 kg		23 000 kg			53 500 kg

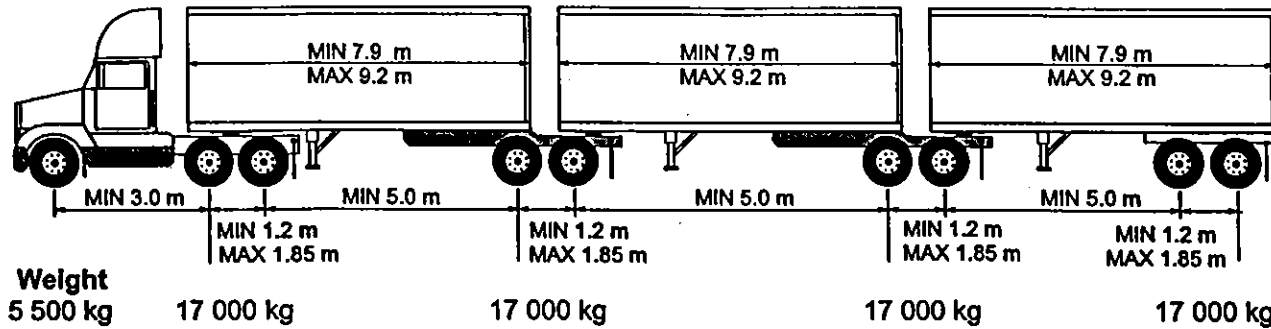
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**



III. TRIPLE TRAILER UNITS

3-B. "B" Train Equipped With Sliding Axle Assemblies

1. Tandem Axle Power Unit, Tandem Axle Trailers



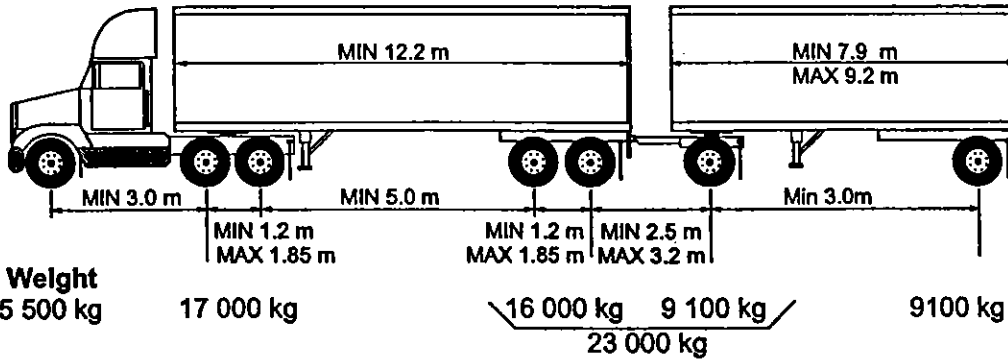
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**



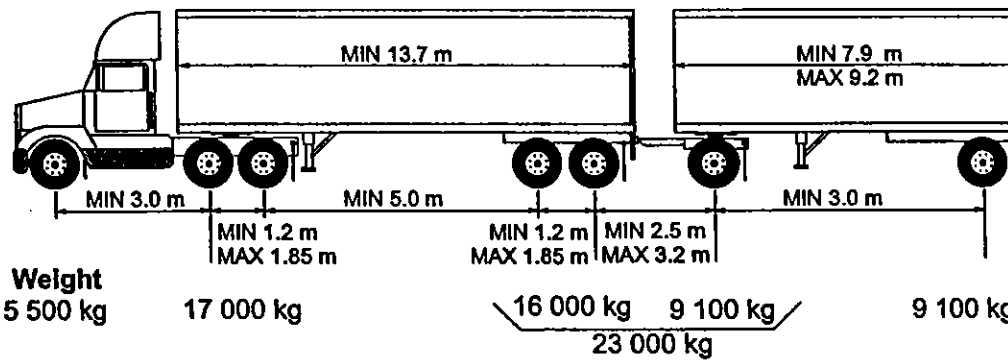
II. ROCKY MOUNTAIN DOUBLES

2-C. "A" TRAINS

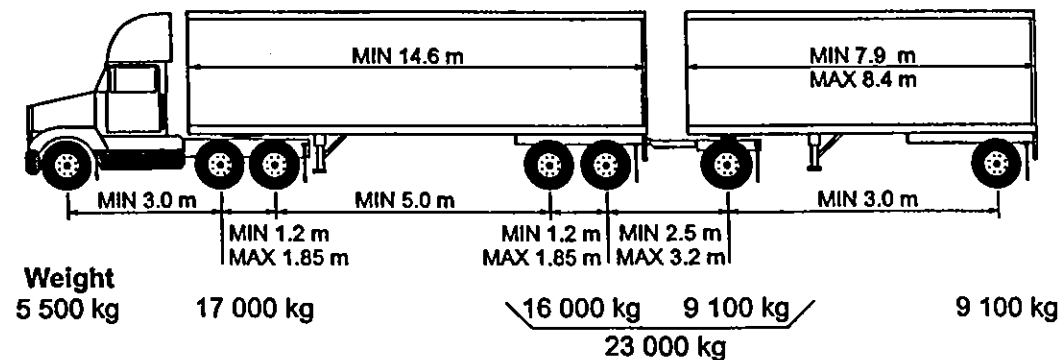
1. Seven Axle, Single Axle Pup



2. Seven Axle, Single Axle Pup



3. Seven Axle, Single Axle Pup



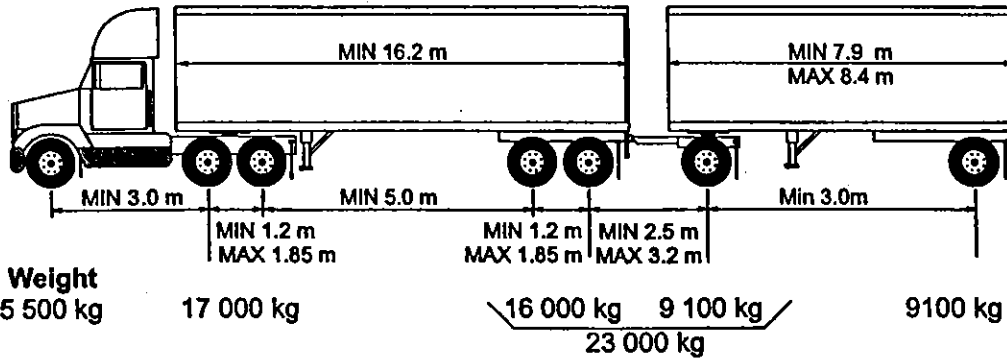
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum**



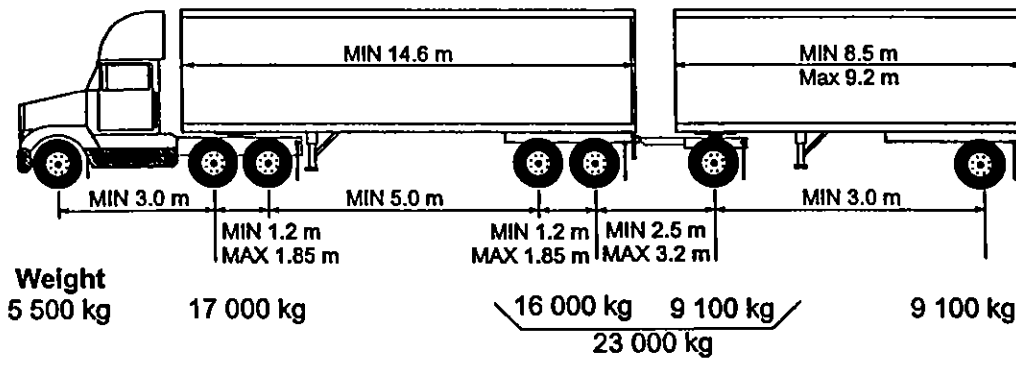
II. ROCKY MOUNTAIN DOUBLES

2-C. "A" TRAINS cont'd.

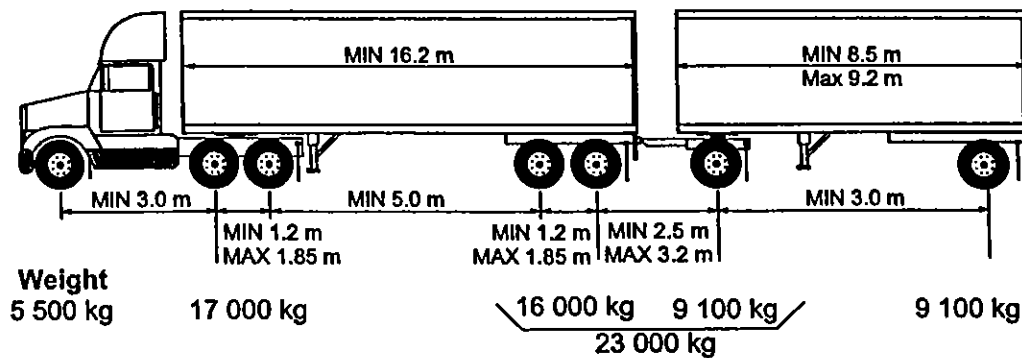
4. Seven Axle, Single Axle Pup



5. Seven Axle, Single Axle Pup



6. Seven Axle, Single Axle Pup



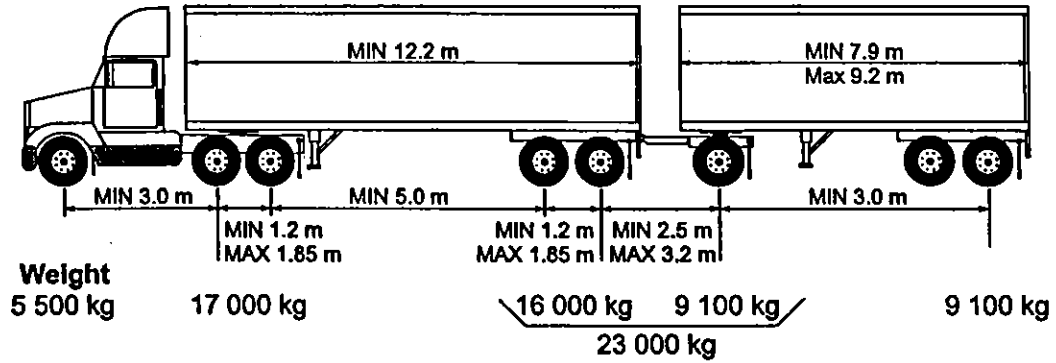
Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum



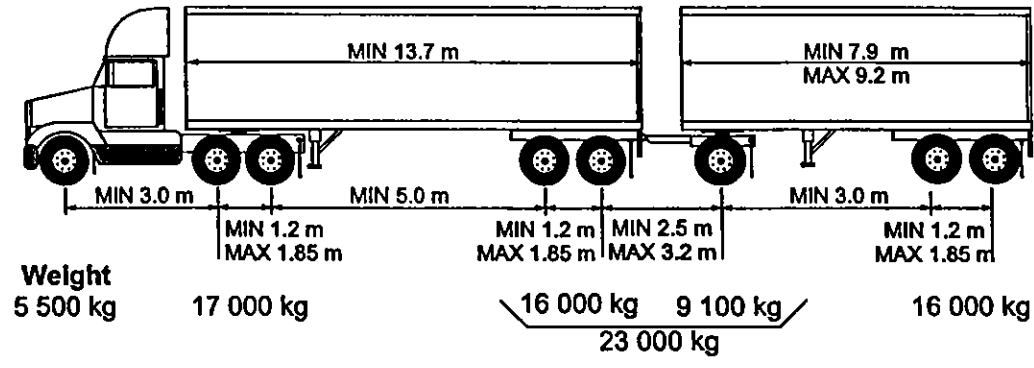
II. ROCKY MOUNTAIN DOUBLES

2-C. "A" TRAINS cont'd.

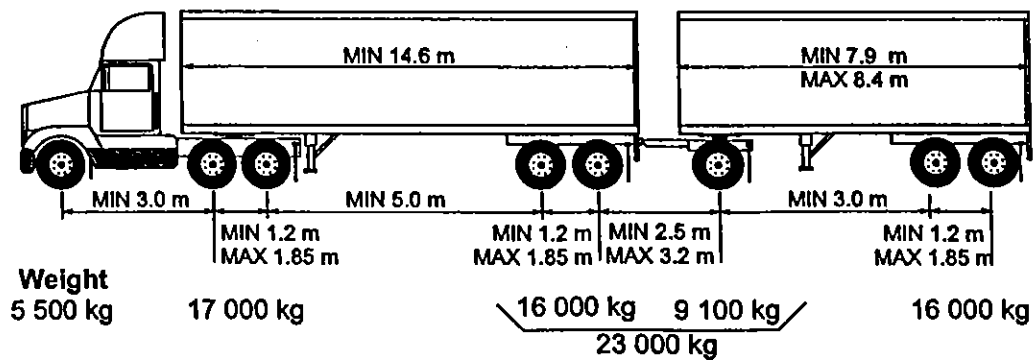
7. Eight Axle, Tandem Axle Pup



8. Eight Axle, Tandem Axle Pup



9. Eight Axle, Tandem Axle Pup



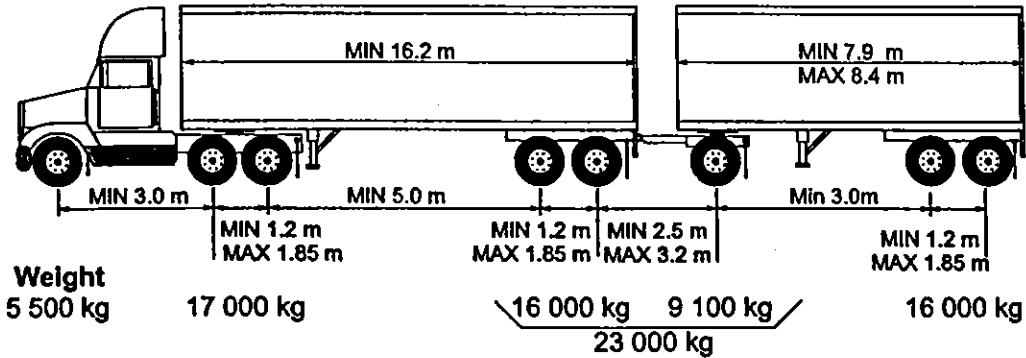
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum**



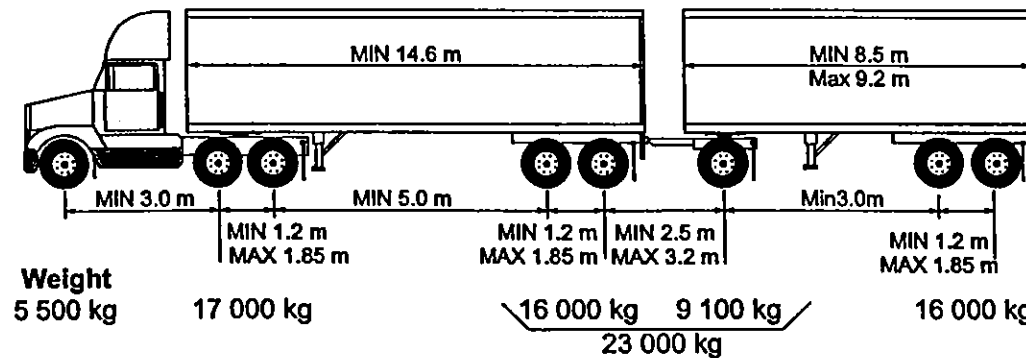
II. ROCKY MOUNTAIN DOUBLES

2-C. "A" TRAINS cont'd.

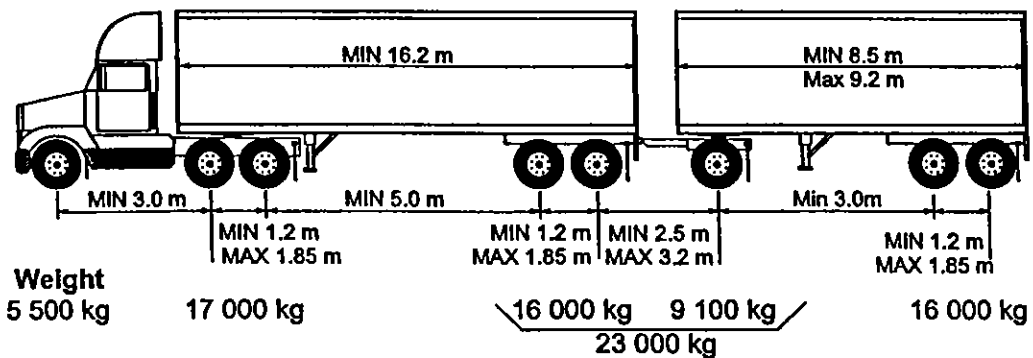
10. Eight Axle, Tandem Axle Pup



11. Eight Axle, Tandem Axle Pup



12. Eight Axle, Tandem Axle Pup



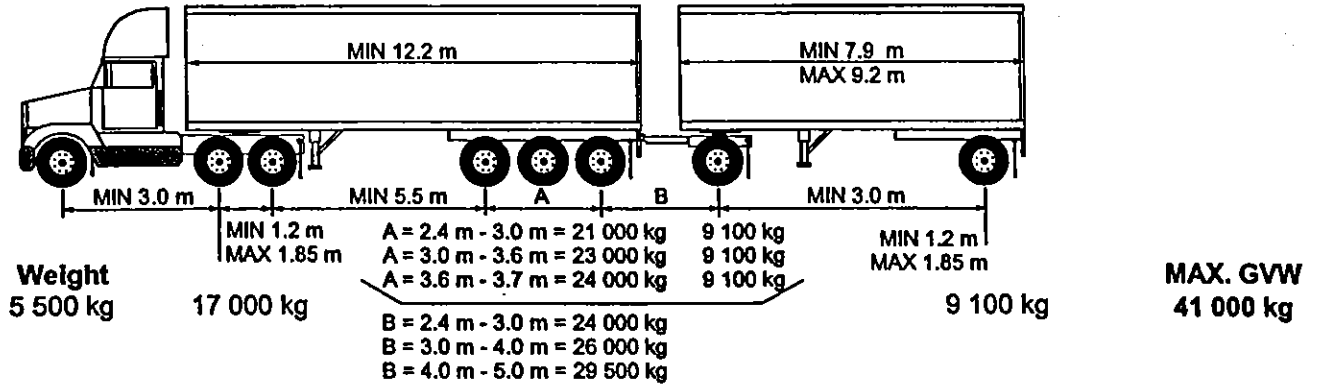
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum**



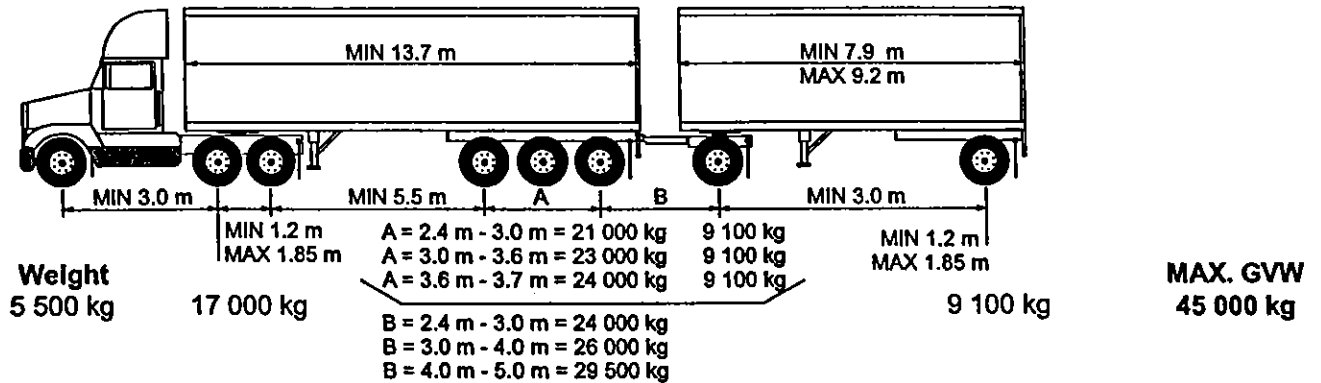
II. ROCKY MOUNTAIN DOUBLES

2-C. "A" TRAINS cont'd.

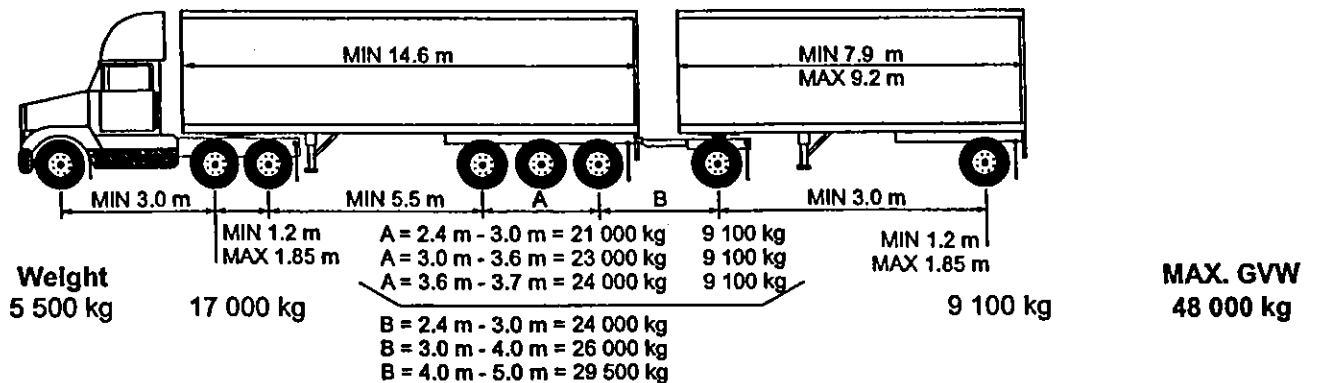
13. Eight Axle, Single Axle Pup



14. Eight Axle, Single Axle Pup



15. Eight Axle, Single Axle Pup



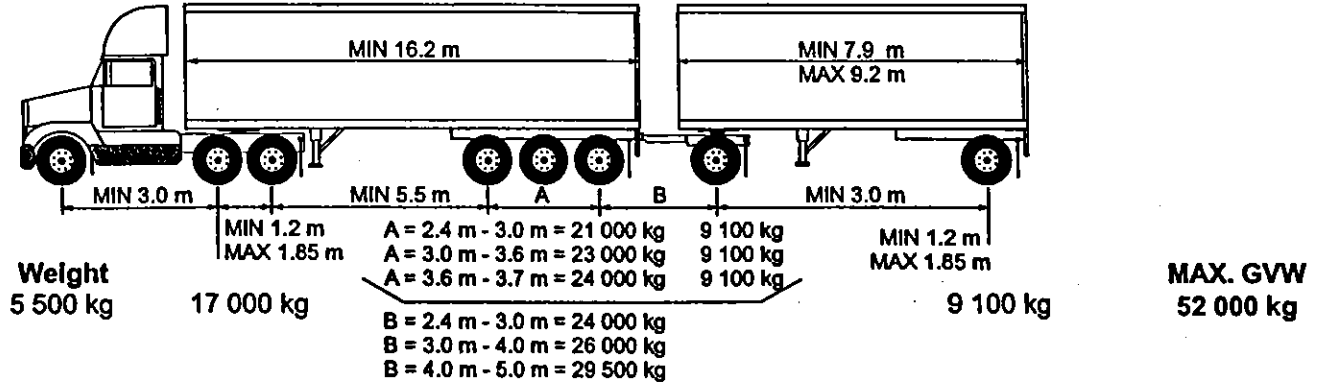
*Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum*



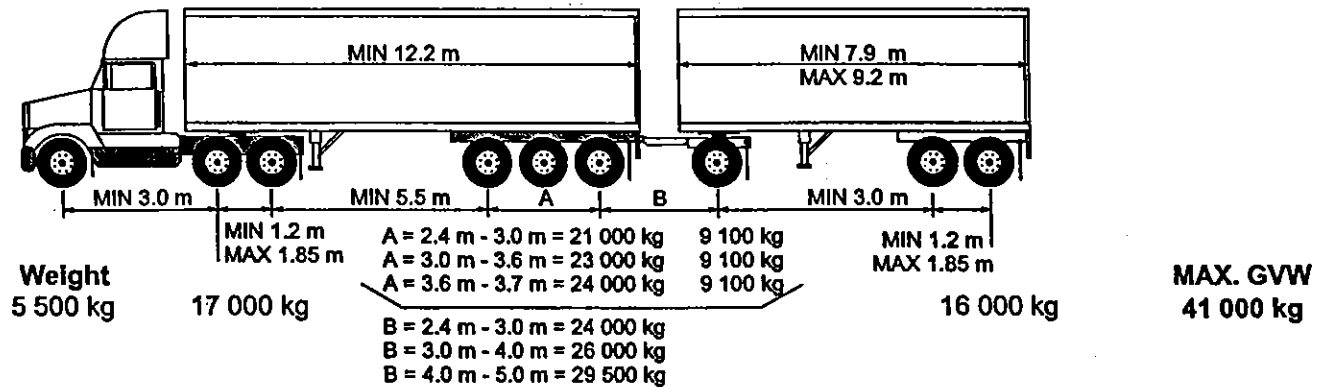
II. ROCKY MOUNTAIN DOUBLES

2-C. "A" TRAINS cont'd.

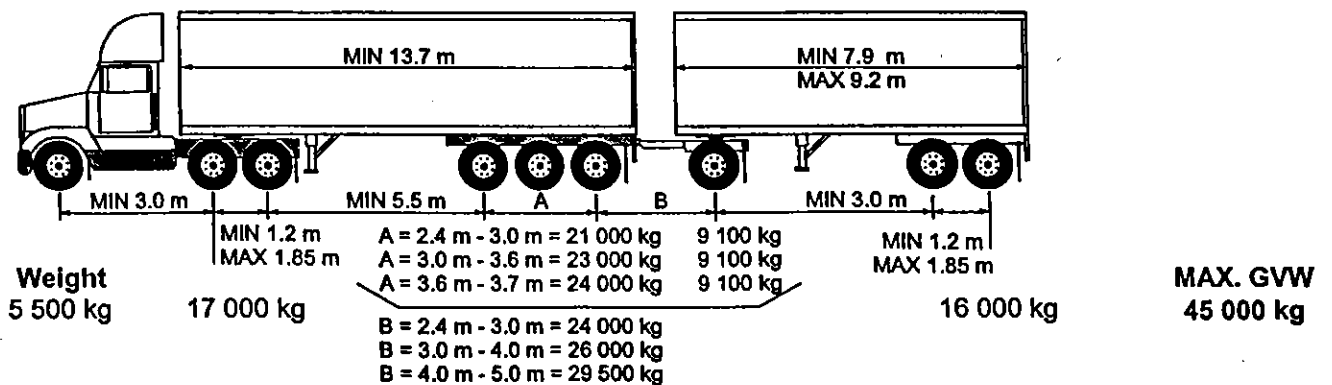
16. Eight Axle, Single Axle Pup



17. Nine Axle, Tandem Axle Pup



18. Nine Axle, Tandem Axle Pup



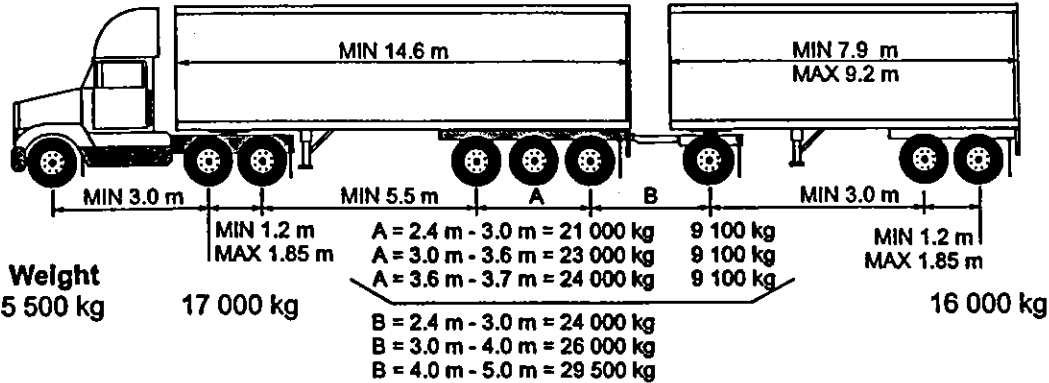
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum**



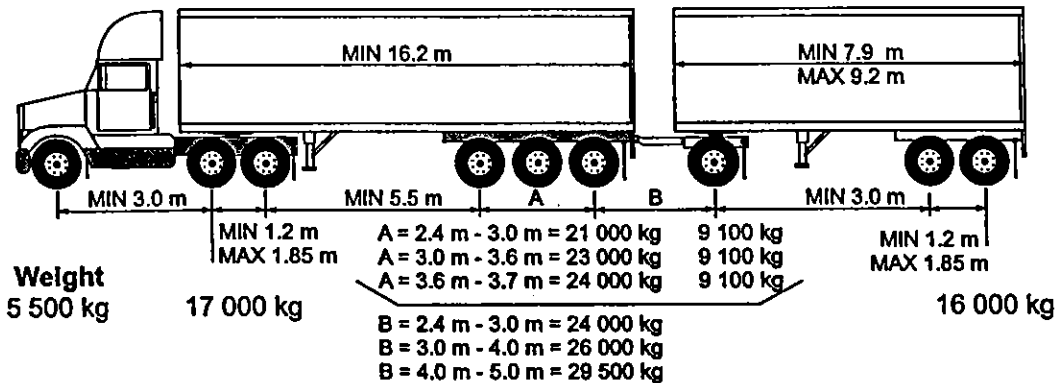
II. ROCKY MOUNTAIN DOUBLES

2-C. "A" TRAINS cont'd.

19. Nine Axle, Tandem Axle Pup



20. Nine Axle, Tandem Axle Pup



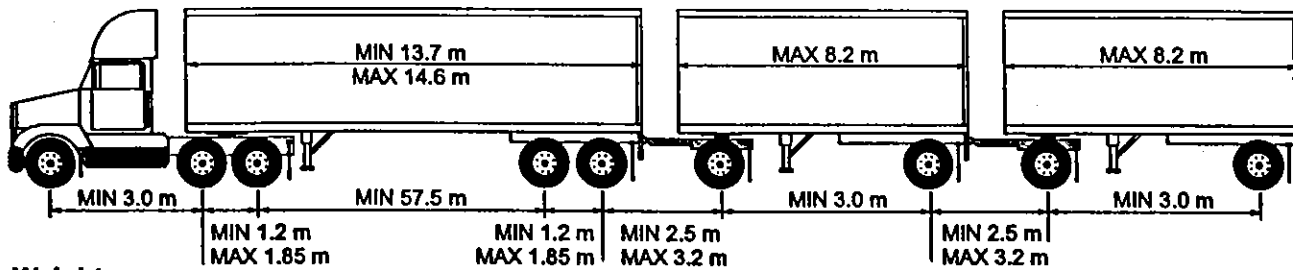
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 31.0 m Maximum**



IV. QUEEN CITY TRIPLE TRAILER COMBINATIONS

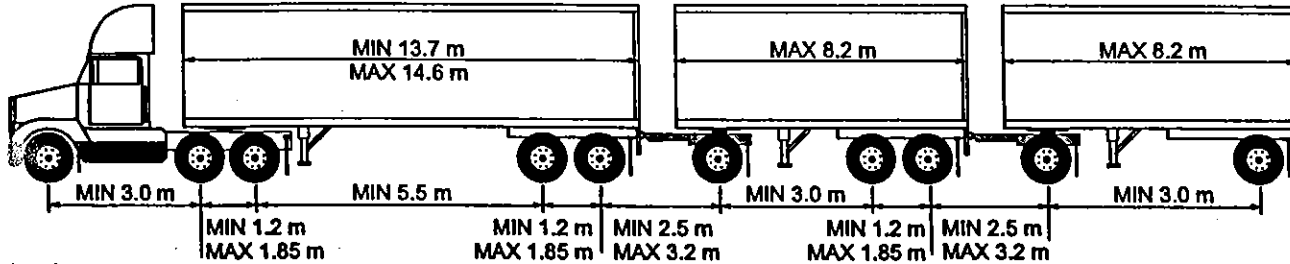
4-A. "C - C" Trains Equipped With Self Steering "C" Dollies

1. Tandem Axle Power Unit, Single Axle Pups



Weight
5 500 kg 17 000 kg 16 000 kg 9 100 kg 9 100 kg 9 100 kg 9 100 kg **MAX. GVW**
23 000 kg 17 000 kg 53 500 kg

2. Tandem Axle Power Unit, Tandem Axle Pup, Single Axle Pup



Weight
5 500 kg 17 000 kg 16 000 kg 9 100 kg 15 000 kg 9 100 kg 9 100 kg **MAX. GVW**
23 000 kg 22 000 kg 53 500 kg

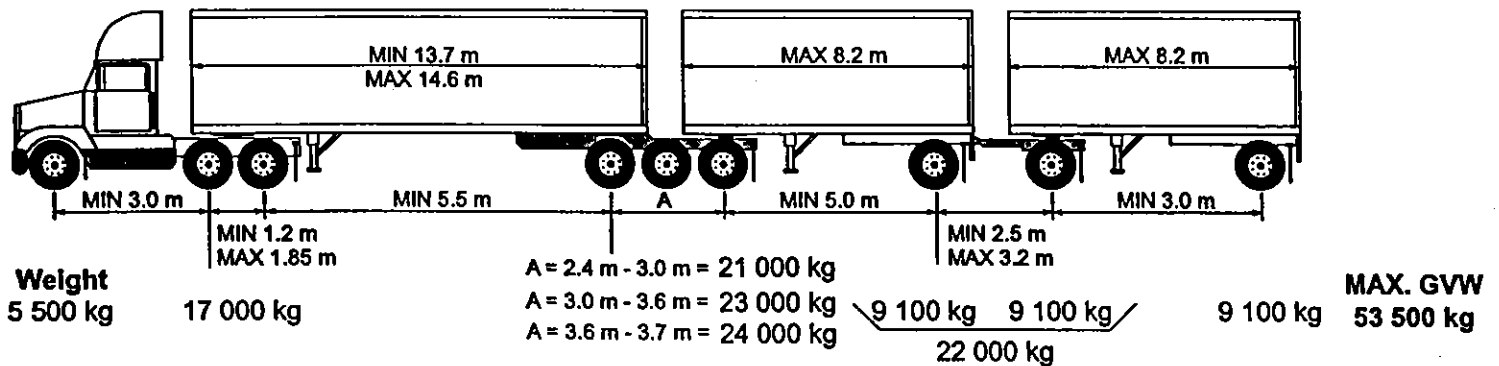
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**



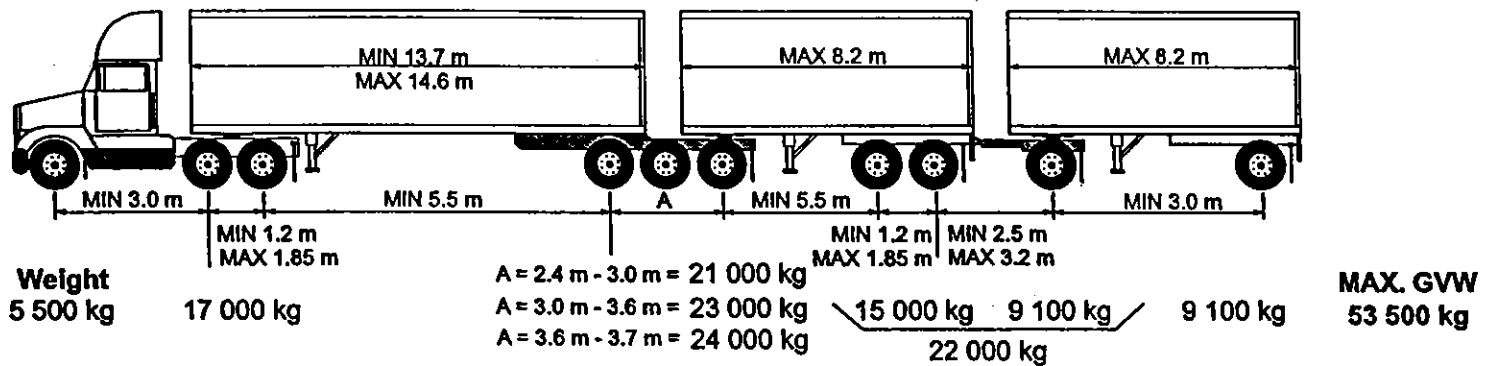
IV. QUEEN CITY TRIPLE TRAILER COMBINATIONS

4-B. "B - C" Trains Equipped With Sliding Axle Assembly and Self Steering "C" Dolly

1. Tandem Axle Power Unit, Single Axle Pups



2. Tandem Axle Power Unit, Tandem Axle Pup, Single Axle Pup



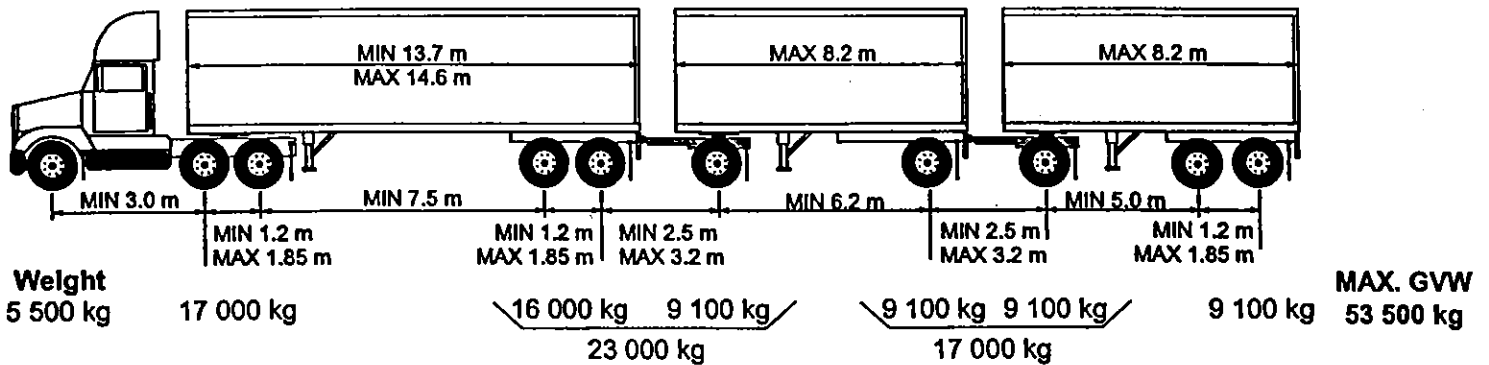
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**



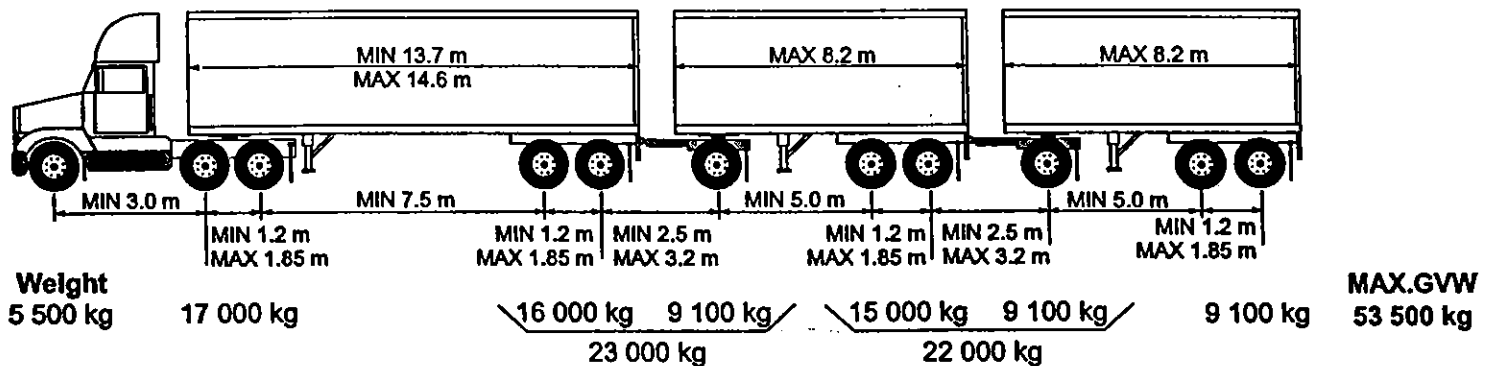
IV. QUEEN CITY TRIPLE TRAILER COMBINATIONS

4-A. "C - C" Trains Equipped With Self Steering "C" Dollies

3. Tandem Axle Power Unit, Single Axle Pup, Tandem Axle Pup



4. Tandem Axle Power Unit, Tandem Axle Pups



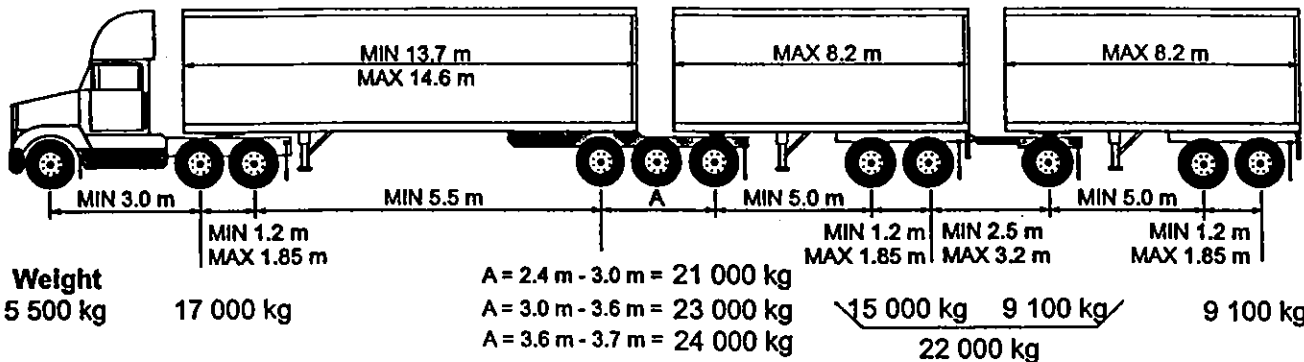
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**



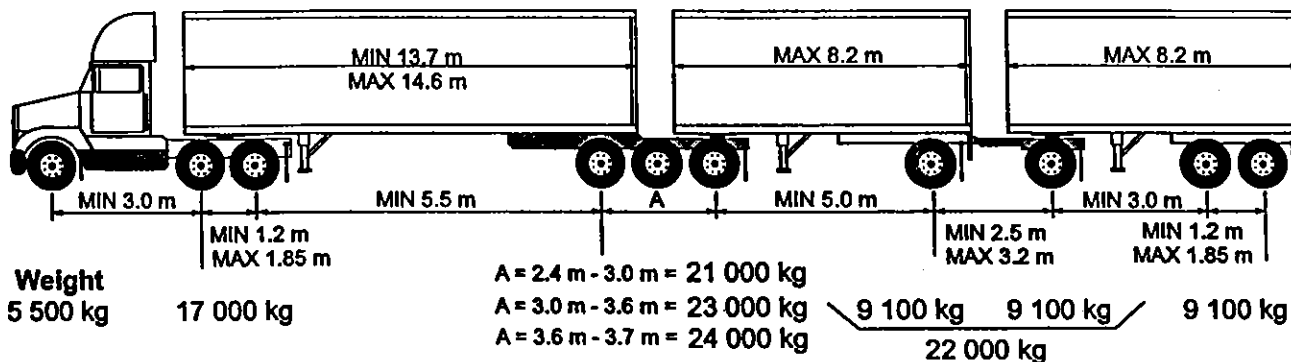
IV. QUEEN CITY TRIPLE TRAILER COMBINATIONS

4-B. "B - C" Trains Equipped With Sliding Axle Assembly and Self Steering "C" Dolly

3. Tandem Axle Power Unit, Tandem Axle Pups



4. Tandem Axle Power Unit, Single Axle Pup, Tandem Axle Pup



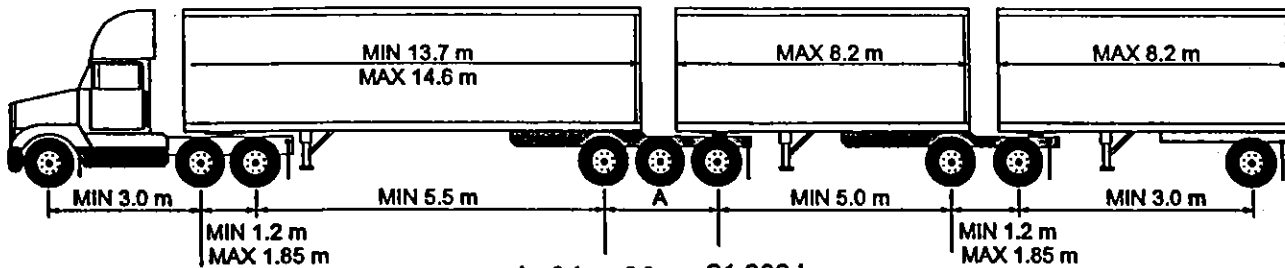
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**



IV. QUEEN CITY TRIPLE TRAILER COMBINATIONS

4-C. "B - B" Trains Equipped With Sliding Axle Assemblies

1. Tandem Axle Power Unit, Tandem Axle Pup, Single Axle Pup



Weight
5 500 kg

17 000 kg

A = 2.4 m - 3.0 m = 21 000 kg

A = 3.0 m - 3.6 m = 23 000 kg

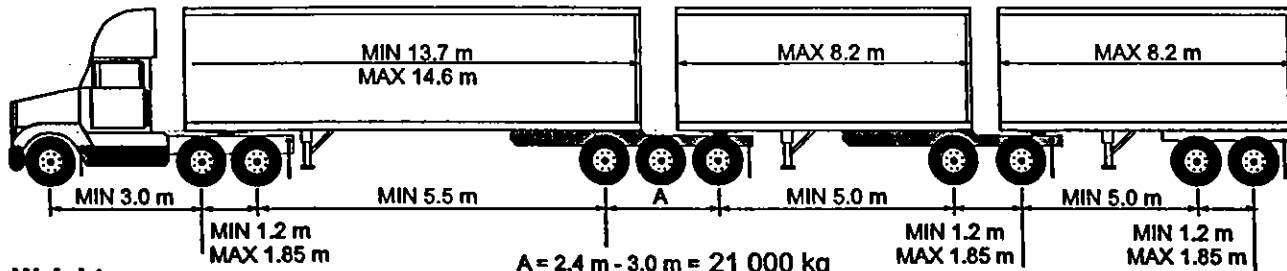
A = 3.6 m - 3.7 m = 24 000 kg

16 000 kg

9 100 kg

MAX. GVW
53 500 kg

2. Tandem Axle Power Unit, Tandem Axle Pup, Single Axle Pup



Weight
5 500 kg

17 000 kg

A = 2.4 m - 3.0 m = 21 000 kg

A = 3.0 m - 3.6 m = 23 000 kg

A = 3.6 m - 3.7 m = 24 000 kg

MIN 1.2 m
MAX 1.85 m

16 000 kg

MIN 1.2 m
MAX 1.85 m

9 100 kg

MAX. GVW
53 500 kg

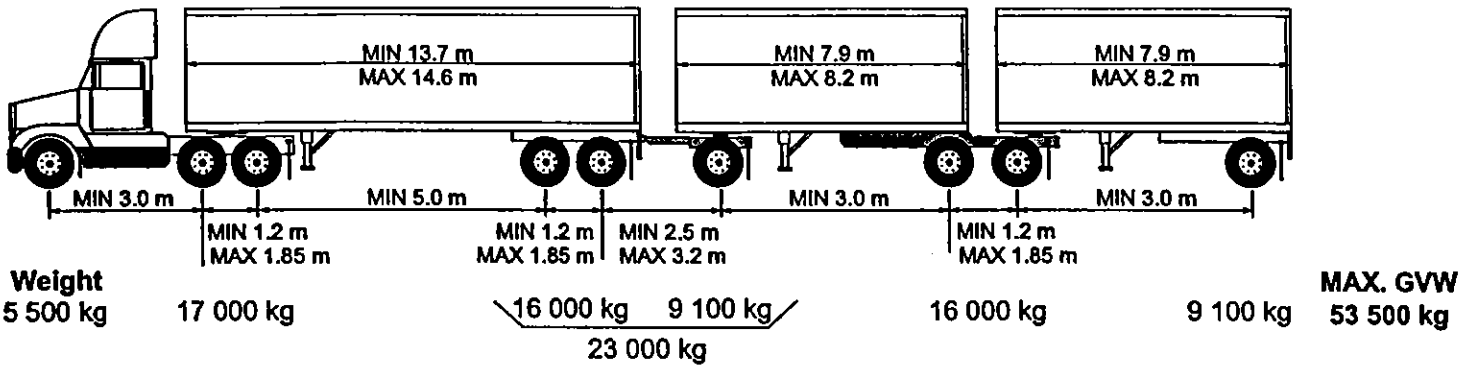
**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**



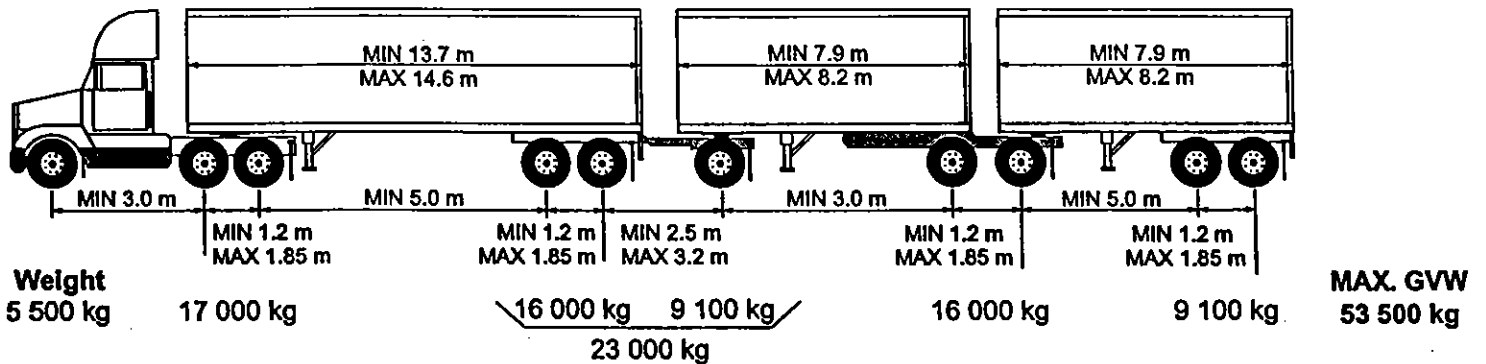
IV. QUEEN CITY TRIPLE TRAILER COMBINATIONS

4-D. "C - B" Trains Equipped With a Self Steering "C" Dolly and Sliding Axle Assembly

1. Nine Axle, Tandem Axle Power Unit, Tandem Axle Pup, Single Axle Pup



2. Ten Axle, Tandem Axle Power Unit, Tandem Axle Pups



**Axle Weight Dependent On Tire Size As Per Regulation
Overall Length 38.0 m Maximum**

HOURS of ALLOWABLE EEMV OPERATION



50 km Commuter Zone (Monday to Friday):
 on two lane highways from : - 00 hours to 700 hours,
 - 900 hours to 1600 hours,
 - 1900 hours to 2400 hours.
 - Saturdays & Sundays from 00 hours to 2400 hours.



Routes with Minor Reduced Hours:
 - The day preceding and the concluding day of a Statutory Holiday Weekend and Statutory Holidays that fall on weekdays: from 00 hours to 1100 hours, and from 2100 hours to 2400 hours.
 - Allowable E2MV Operation during all other times.



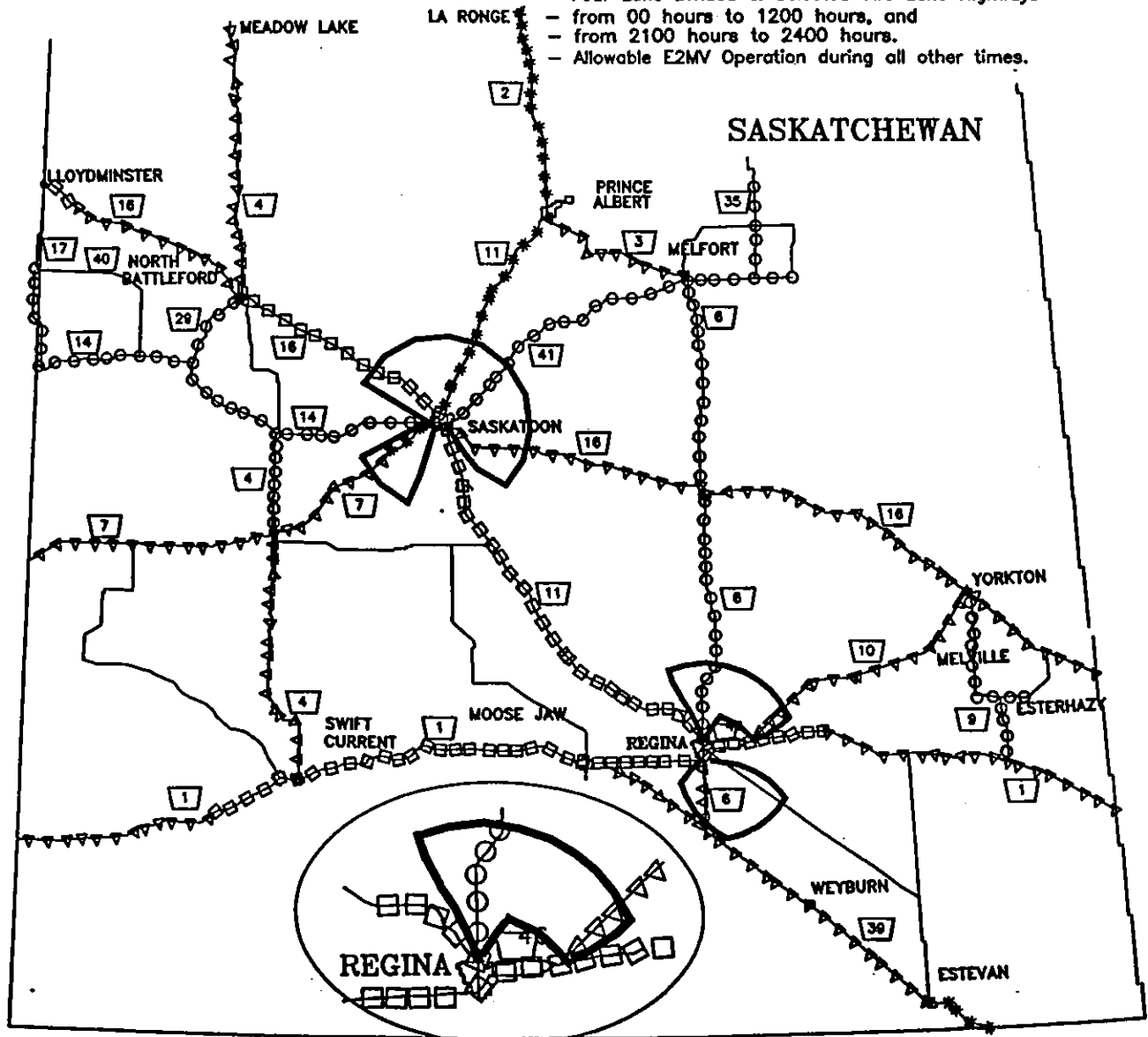
Routes with Year Round Reduced Hours:
 - Monday to Friday: from 00 hours to 700 hours, and from 2100 hours to 2400 hours.
 - Saturdays, Sundays and Statutory Holidays: from 00 hours to 900 hours, and from 2100 hours to 2400 hours.



Routes with Seasonal Reduced Hours:
 - From the May Long Weekend to the September Long Weekend: from 00 hours to 900 hours, and from 2100 hours to 2400 hours.
 - From the September Long Weekend to the May Long Weekend:
 - Fridays and Sundays: from 00 hours to 1100 hours, and from 2100 hours to 2400 hours.
 - Mondays to Thursdays & Saturdays: from 00 hours to 2400 hours.
 - The day preceding and the concluding day of a Statutory Holiday Weekend and Statutory Holidays that fall on weekdays: from 00 hours to 1100 hours, and from 2100 hours to 2400 hours.



Routes with Statutory Holiday Hours of Restriction: from 2100 hours to 2400 hours.
 - Four Lane Divided & Selected Two Lane Highways
 - from 00 hours to 1200 hours, and from 2100 hours to 2400 hours.
 - Allowable E2MV Operation during all other times.



APPENDIX 9903 OVERLENGTH VEHICLE PROGRAM

HOURS OF RESTRICTED EEMV OPERATION

(as per attached route)

1. Commuter Zones: A 50 kilometre commuter zone is in effect on two lane highways around Saskatoon and Regina from Monday to Friday. Highway #14 west of Saskatoon is removed from the commuter zone restriction. These zones take precedence over all other schedules.

LCV Restriction Schedule:

- *Monday to Friday all year:*
 - *7:00 am to 9:00 am and*
 - *4:00 pm to 7:00 pm.*
- *Commuter zone restrictions are not in effect on Saturdays, Sundays or Statutory Holidays.*

2. Routes With Minor Restrictions: The following routes will essentially be 24 hour LCV routes. The only restrictions that will apply are to avoid commuter and holiday weekend traffic.

- Highway #3 from Melfort to Crooked River,
- Highway #4 from Rosetown to Biggar,
- Highway #6 from Regina to Melfort,
- Highway #9 from Whitewood to Yorkton,
- Highway #22 from Stockholm to Esterhazy,
- Highway #14 from Saskatoon to Macklin,
- Highway #17 north from Jct #14 (Macklin) to Alberta border
- Highway #29 Wilkie to North Battleford,
- Highway #35 from Tisdale to Nipawin, and
- Highway #41 from Saskatoon to Melfort.

LCV Restriction Schedule:

- *Commuter zones (hours described in 1. above)*
- *The day preceding and the concluding day of a Statutory Holiday weekend and all Statutory Holidays that fall on weekdays from:*
 - *11:00 am to 9:00 pm.*
- *Unrestricted LCV travel during all other times.*

3. Routes With Seasonal Restrictions: These routes have restriction schedules that change before the May Long Weekend and after the September Long Weekend to accommodate the typically higher traffic volumes experienced during the summer.

- The two lane portions of Highway #1,
- Highway #3 from Melfort to Prince Albert,
- Highway #4 from Swift Current to Rosetown,
- Highway #4 from North Battleford to Meadow Lake,
- Highway #6 from Regina to Corinne,
- Highway #7 from Delisle to the Alberta border,
- Highway #10 from Balgonie to Yorkton,
- Highway #16 from North Battleford to the Alberta border,
- Highway #16 from Manitoba border to Saskatoon, and
- Highway #39 from Estevan to Moose Jaw.

LCV Restriction Schedule:

- *Commuter zones (hours described in 1. above)*
- *From before the May Long Weekend until after the September Long Weekend:*
 - *9:00 am to 9:00 pm everyday including Statutory Holidays*
- *For the remainder of the year:*
 - *Fridays:*
 - *11:00 am to 9:00 pm.*
 - *Sundays:*
 - *11:00 am to 9:00 pm.*
- *The day preceding and the concluding day of a Statutory Holiday weekend and all Statutory Holidays that fall on weekdays from:*
 - *11:00 am to 9:00 pm.*
- *Unrestricted LCV travel during all other times.*

4. Routes With Year Round Restrictions: Restrictions on these routes are due to high traffic volumes.

- Highway #2 from Prince Albert to La Ronge,
- Highway #7 from Saskatoon to Delisle,
- Highway #11 from Saskatoon to Prince Albert, and
- Highway #39 from Portal to Estevan.

LCV Restriction Schedule all year:

- *Monday to Friday:*
 - *7:00 am to 9:00 pm.*
- *Saturday, Sunday and Statutory Holidays:*
 - *9:00 am to 9:00 pm.*
- *Unrestricted LCV travel during all other times.*

5. Four Lane Highways:

- The portion of Highway #1 from Gull Lake west and Highway #16 from Saskatoon to North Battleford will be restricted to EEMV travel for vehicles in excess of 31 m in length as per article 202 Haul Routes.
- The four lane portions of Highways #1, #11 and #16 will be restricted to EEMV travel on Statutory Holidays. The restriction will include the Kalium Road from the Junction of Highway #1 at km 42.73 to the Canadian Salt Plant and Highway #46 from Junction #1 at Balgonie to Regina.
- Following is the *LCV Restriction Schedule:*
- *Statutory Holidays:*
 - Noon to 9:00 pm.*
 - Unrestricted LCV travel during all other times.*

APPENDIX 9904

EQUIPMENT SPECIFICATIONS for ENERGY EFFICIENT MOTOR VEHICLES (EEMV)

APPENDIX 9904 EQUIPMENT SPECIFICATIONS FOR EEMV**9904-1 Engine Horsepower**

All power units must be capable of moving the maximum load at the same speed as a legally loaded truck at the maximum weight specified by highway regulation. As a guideline all vehicles should have a minimum of at least one horsepower for every 160 gross vehicle kilograms (350 gross vehicle pounds). Units that do not meet this specification can, in special circumstances, be used if the Minister is satisfied that the power unit is capable of moving the trailers in a way that does not unduly interfere with other traffic.

9904-2 Power Train Ratings

All transmission/s, drive line/s and gear assemblies, etc., must be adequate for the maximum loading intended.

9904-3 Axle and Suspension Ratings

All axles, hubs, suspensions, undercarriage and related components must be rated by the manufacturer for the maximum load to be carried.

9904-4 Overall Carrying Capacity of Tractors and Trailers

All power units and trailers including all coupling devices must be rated by the manufacturer for the maximum load that is intended. All pintle hitches must be of the no-slack design.

9904-5 Brakes

All vehicles constructed after the introduction of Canadian Motor Vehicle Standard 121 must be equipped with brakes that meet the standard. All vehicles, regardless of their date of construction, must be capable of coming to a full stop from an operating speed of 90 km/h within a distance of 115 m under loaded conditions. The test to be carried out on pavements with a skid number that equals or exceeds 55 when measured in accordance to ASTM test number E 274 at 65 km/h. Compatible relay valves (such as the Sealco 3100 mini-valve or Bendix R8P valve) are required to reduce the time lapse between treadle application and brake application at rear most trailer.

9904-6 Air Compressors and Reservoirs

- A. All compressors must be capable of raising the air pressure from 50 PSI to 90 PSI with the engine idling at 1250 RPM in 2 minutes or less with the

power unit alone and 4 minutes or less with the trailers hooked up and the complete air system energized.

- B. All power units must be equipped with at least two air reservoirs. Each reservoir must have at least 41 000 cm³ (2,500 in³) of capacity of the two tanks must have a combined capacity of 82 000 cm³ (5,000 in³).

9904-7 Tires

The manufacturer rating on all tires and rims on any vehicle must not be exceeded. All tires on any one axle must be of the same type (either all bias ply or radial).

9904-8 Mud Flaps

The rear axle of the power units, converters and trailers must be equipped with anti-sail type mud guards, big enough to cover the full width of the tires and positioned so that the distance from the ground to the bottom of the mud flap, when empty, cannot be more than one-third the distance from the centre of the wheel to the mud flap.

9904-9 Speed Recording Graph

All power units must be equipped with a speed recording graph. If the speed recorder breaks down the permit is suspended as of the end of the trip. The Company must manually record the trip details after the breakdown. The Company must advise the Minister of the malfunction as soon as possible after it occurs. The Minister may remove the suspension, if replacement or repair is unavoidably delayed.

9904-10 Axles

After the date this Agreement is signed, all trailers purchased (new or used) by the Company for use on the Truck Haul must be equipped with axles that are constructed such that the measurement from the outward edge of the outside tire on one side to the outward edge of the outside tire on the other side is approximately equal to trailer body width.

9904-11 Lights

All vehicles must be equipped with lighting systems that comply with Canadian Motor Vehicle Standard 108.

9904-12 Trailer to Trailer Hitching Devices

A. Definitions

(1) "C" Dolly Converter

A "C" dolly converter is a dual drawbar dolly which couples two trailers together and provides only one point of articulation in a horizontal plane.

(2) Self Steering "C" Dolly Converter

a) Western Turntable Style

A western turntable style self steering "C" dolly converter is a "C" dolly converter equipped with a solid axle mounted to a turntable bearing. The axle steers in response to forces generated at the tire/road surface contact point.

b) Automotive Style

An automotive style self steering "C" dolly converter is a "C" dolly converter in which the wheels of the dolly steer about kingpins that are an integral part of the axle assembly in response to forces generated at the tire/road surface contact point.

(3) Controlled Steering "C" Dolly Converter

A controlled steering "C" dolly converter is a "C" dolly converter which steers in response to a mechanical steering device (arm) which is attached to the upper fifth wheel coupling of the rear trailer.

(4) "A" Dolly Converter

An "A" dolly converter is a dolly converter which hitches to the lead trailer by means of a single pintle hitch and provides two points of articulation in a horizontal plane between the lead and the rear trailer.

B. Dual Drawbar "C" Dollies

All dual drawbar "C" dolly converters used to couple any two trailers together must provide only one point of articulation between them in a horizontal plane. Where any axle or axles on a vehicle are spaced more than two metres from any adjacent axle on the same vehicle, one or more of the axles must be steering axles or there must be a point of vehicle articulation.

- (1) All new self steering "C" dolly converters used pursuant to this Agreement must meet all standards and operating procedures approved by the Minister. The current standards and operating procedures are specified in Appendix 9907.
- (2) All self steering "C" dolly converters that are either ordered or identified in a current equipment list recorded by the Department and are to be used on vehicles with a gross vehicle weight exceeding 53.5 tonnes must meet the following provisions:
 - a) the dolly converters must meet the specifications and be operated in accordance with the procedures described in Appendix 9907.
 - b) for "C" dollies which do not meet the specifications the carrier can elect to operate the axle in the locked mode at speeds in excess of 50 km/h at all times for a period not exceeding six months from the date of execution of the Overlength Vehicle Operating Agreement. This period is to provide time to upgrade dollies so they will meet the specifications in Appendix 9907.
- (3) In cases where the Company intends to operate at a gross vehicle weight of 53.5 tonnes or less subject to Clause 4 of Appendix 9907 the following grandfather provisions will apply:
 - a) All existing self steering "C" dollies equipped with automotive style axles that are ordered or constructed prior to the date of this Agreement are not required to meet the steering axle test described in Clause 3 of Appendix 9907.
 - b) All existing self steering "C" dollies equipped with turntable style axles that are either ordered or identified in a current equipment list recorded by the Department must either be operated in the locked mode at all times when the

vehicles are being operated at speeds in excess of 50 km/h under any road conditions or meet the steering axle test contained in Clause 3 of Appendix 9907 with the following modifications:

- (i) The side force identified in 3 (e) at Appendix 9904 can be reduced to 2 275 kg (5,020 lbs); and
 - (ii) The minimum side force identified in 3 (g) of Appendix 9907 required to steer the axle from the initial resting place must be a minimum of 2 275 kg (5,020 lbs) through the first six degrees of steer and 1,140 kg (2,510 lbs) through the remaining range of steer angles.
- (4) All controlled steering "C" (CSC) dolly converters must be constructed so the performance of the vehicle will equal or exceed the dynamic performance of a similar vehicle equipped with the CSC dolly converter designed by the University of Michigan, Transportation Research Institute.
 - (5) In this clause "clearance" means the distance between the centre line of the dolly axle and the rearmost axle of the lead trailer. The clearance shall not be less than 2.5 metres. The dolly drawbar shall be constructed so as to provide a clearance as close as possible to 2.5 metres but in any event shall not be greater than 3.2 metres unless otherwise agreed to by the Minister.

C. Single Pintle Hook "A" Style Converter

Either single or tandem axle "A" style converter (single pintle hook style) can be used with Vehicle 1-A in Appendix 9902, Section I subject to the following conditions:

- (1) The distance between the pintle hook and the rear axle of the leading trailer must not exceed 1.2 metres unless otherwise agreed to by the Minister.
- (2) The distance between the last axle of the leading trailer and the first or only axle on the dolly converter must be in accordance with the distance shown for Vehicle 1A and 1C in Appendix 9902.

D. Single Pintle Hook "A" Style Converter

Single axle "A" style converters can be used with vehicles shown in Appendix 9902, Section II, 2C.

9904-13 Safety Chains and Related Fasteners

All converters must be equipped with safety chains that meet SGI standards.

9904-14 Mirrors

All power units must have one convex mirror, 20 cm (8") in diameter, mounted on the curb side.

9904-15 Reflection Tape

A. Trailers Manufactured Before Introduction of Transport Canada Regulations

Each trailer manufactured before February 24, 1997 is required to have two lengths of red and white reflective tape, a minimum of 150 cm² (60 in.²) each, at the rear, as wide apart and as low as practical.

B. Trailers Manufactured After Introduction of Transport Canada Regulations

All trailers purchased after the introduction of the cited regulations on February 24, 1997 must meet the Canadian Motor Vehicle Safety Standards for reflective markings.

APPENDIX 9905

SELF-STEERING "C" DOLLY CONVERTER STANDARDS

and

OPERATING PROCEDURES

APPENDIX 9905 SELF STEERING "C" DOLLY CONVERTOR STANDARDS AND OPERATING PROCEDURES

9905-1 Sudden Loss of Air Pressure

The dolly axle must retain sufficient centering force in a non steer position to operate safely in the event of loss of air pressure.

9905-2 Steering Axle Operation

1. The steering axle can be in the unlocked position when the vehicle is operated on hard dry road conditions. The steering axle must be locked at vehicle speeds in excess of 50 km/h under any other road conditions.
2. Drivers are responsible for ensuring the air pressure applied to the dolly steering axle centering mechanism is set at all times in accordance with the manufacturer's recommended setting for the weight being carried.

9905-3 Steering Axle Test

The dolly axle must meet the following test:

- A. Load the dolly axle to 9 100 kg (20,050 lbs).
- B. Position the dolly so that both wheels of the dolly axle are sitting on a theoretically "friction-less" surface.
- C. Ensure the axle is in the unlocked or steering mode.
- D. Energize the line pressure to the air damper system to 690 kPa (100 psi).
- E. Apply a side force of 2 735 kg (6,030 lbs) five cm (two inches) behind the centre line of the dolly axle. (If the dolly is equipped with signs indicating that only radial tires are to be used then the force can four cm (one half inches) behind the centre line of the dolly axle).
- F. The axle centering device must remain at the no steer position under load. (As a guideline, to account for compliance in the system, the axle should not steer more than one degree with half the force applied and not more than two degrees with the full force applied.)
- G. Increase the side force until the axle steers to the maximum steer angle of the dolly. The minimum side force required to steer the axle from the initial resting place to the maximum steer angle must be at least 2 735 kg (6,030 lbs) throughout the range of steer angle.

- H. The axle must have sufficient restoring torque in its centering mechanism so that it will return to the neutral or zero steer position after the side force is removed.
- I. The dolly axle must pass this test in both directions of steer from the zero steer position.

9905-4 Performance Standards

Should national or Saskatchewan design and performance standards be set for self steering "C" dolly converters, all carriers using this type of dolly converter operating vehicles pursuant to this policy will be required to meet all of the specifications and standards. It is the Minister's intention to grandfather existing "C" dollies unless it is discovered that a particular dolly has negative safety implications or federal legislation prohibits grandfathering. A reasonable phase in period shall be negotiated with the Company where applicable.

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