

**General Operating Instructions (GOI)**

**Section 13**

---

**Air Brake Tests and Procedures**

**TABLE OF CONTENTS**

1.0	General .....	160
2.0	Locomotive Brake Test .....	161
3.0	RSC (Safety Control System) .....	162
4.0	Locomotive and Yard Test Plant Air Pressure Settings .....	163
5.0	Train Brake Tests .....	164
6.0	No 1 Brake Test .....	165
7.0	No 1-A Brake Test .....	166
8.0	Cars Brake Tested Prior to Adding to a Train .....	166
9.0	Continuity Test .....	166
10.0	Brake Pipe Continuity Test (ECP Trains) .....	167
11.0	Running Brake Test .....	167
12.0	Train Brake Test Using a Backup Hose or Valve .....	168
13.0	Snow Plow Brake Test .....	168
14.0	Block Swaps .....	168
15.0	Transfer Movements .....	168
16.0	Movement of Cars and Locomotives with Inoperative Brakes .....	169
17.0	Recording the Train Brake Status .....	170
18.0	Trains for Interchange .....	172

**1.0 General****1.1 Purpose**

These test procedures are intended to ensure the safe operation of brakes on all locomotives, freight trains, and passenger trains operating in Canada. These instructions are in compliance with Transport Canada's Railway Freight and Passenger Train Brake Rules.

**1.2 Responsibility**

Unless otherwise specified, the conductor and/or locomotive engineer are responsible for determining that the required brake test has been completed prior to departure.

**1.3 Observe Locomotive Gauges**

Brakes will be operated from the lead locomotive.

All air gauges and displays should be observed with sufficient frequency to know that pressures are as required. Should air flow and/or brake pipe gradient increase and continue beyond the limits established in the test procedures, the train crew must take corrective action or seek the assistance of the Central Locomotive Specialist.

**1.4 Definitions**

- a) **"automatic brake handle"** - the handle, push/pull button, rotary knob or other device used to control the application and release of the automatic brake.
- b) **"block of cars"** means two (2) or more cars that have previously received a No. 1 or No. 1A brake test, as a solid coupled block, for which a record (Brake Status) is available.
- c) **"block swap"** means the addition to a train of a maximum of two (2) solid coupled block(s) of cars that have previously received a No. 1 brake test.
- d) **"brakes"** means pneumatic (air) or electronically controlled pneumatic (ECP) brake systems.
- e) **"calibrated"** - an indication on the Air Flow Indicator at a position that corresponds to a flow of air into the brake pipe of 60 cubic feet per minute (cfm).
- f) **"certified car inspector"** - a mechanical services employee who has been trained and certified to inspect and repair car brake equipment.
- g) **"continuity"** - having the capability to transmit a brake signal between the leading locomotive and the rear of the last piece of equipment of a train.
- h) **"integrity"** - having the unimpaired capability to supply air to the rear of the last piece of equipment of a train.
- i) **"locomotive"** - any on-track equipment intended for propulsion and/or control of freight, passenger, or service equipment and includes locomotives coupled in a consist for multiple operation.
- j) **"operative"** - the brakes on a car or locomotive apply and release and are in suitable condition to retard and stop that equipment.
- k) **"person in charge"** - a person appointed by the Company to ensure the safe conduct of a railway operation, and who is certified according to the appropriate Transport Canada Rules.
- l) **"qualified person"** - a person who has the knowledge, training, and experience to perform a specific duty safely and properly. Train crews are qualified to perform certain brake tests and to perform pre-departure and pull-by inspections.
- m) **"safety inspection"** - a stationary examination of a locomotive or car for safety defects by a person who is certified or qualified according to the appropriate Transport Canada Rules, to verify that it may move safely or to identify defects which require correction.
- n) **"safety inspection location"** - a location designated by the Company, and recorded with Transport Canada, where persons are employed for the purpose of performing safety inspections on cars and/or locomotives.
- o) **"terminal area"** - a location that includes one or more yards together with the tracks connecting the yard or yards and industries within that area.

**2.0 Locomotive Brake Test**

**2.1 Perform a locomotive air brake test when:**

- a locomotive has been:
  - placed into service after maintenance,
  - repaired,
  - altered by adding a locomotive, setting off a locomotive from the middle of the consist, or changing operating ends. (A locomotive brake test is not required when setting off the trailing locomotive(s) in a consist.)
- a locomotive engineer takes charge of a locomotive, except when changing off with another locomotive engineer, or as provided in 2.2 below.

**2.2 Locomotive Brake Test Information**

- If locomotive brake tests are performed by qualified persons other than the locomotive engineer, then prior to departure, the locomotive engineer must confirm the brake test was completed by obtaining the results:
  - in writing (Schedule B form),
  - in person, or by radio from a person who has immediate access to the test results.
- If the results of the brake test are made available to the locomotive engineer, and if the locomotive has not been placed in active service, then another brake test is NOT required, regardless of time elapsed.
- If the results of the brake test are NOT made available, then the locomotive engineer must perform the brake test.

**Examples:**

- 1) A yard crew takes a locomotive consist off the shop track that has a schedule B and places the consist on a train. Is another locomotive brake test required when the outgoing crew takes control?

Yes, once the yard crew takes control of the consist, it has been placed in active service and unless a direct transfer occurs between the locomotive engineers of the yard crew and the outgoing crew, another locomotive brake test must be performed.

- 2) A train is secured and staged for several hours. Is a locomotive brake test required, when the outgoing crew takes control?

Yes, unless a personal transfer takes place between the incoming and outgoing locomotive engineers, a locomotive brake test is required.

**2.3 Locomotive Brake Test Procedure**

Step	Description
1	Ensure the locomotive is protected from unintended movement.
2	Place the automatic brake handle in the release position for at least 2 minutes, to ensure the locomotive air brake system is sufficiently charged.
3	Fully apply and release the independent brakes.
4	Make a 15 psi brake pipe reduction and release the locomotive brakes by depressing the independent brake handle (bail) for at least 4 seconds for each locomotive in the consist.
5	Make a further brake pipe reduction (Full Service) and then release the automatic brake.
6	Test the operation and recovery of the Safety Control System, except when adding a trailing locomotive(s).
<b>Note</b>	A qualified person must be positioned on the ground to observe that all brake pistons extend and retract as intended on the locomotives being tested.

**2.4 Distr Pwr: Remote Locomotive Air Brakes**

To verify the brakes on the remote consist(s) are functioning as intended, observe the decrease and increase of the remote consist(s) brake cylinder pressure on the controlling locomotive's Distr Pwr screen. It is not necessary for a qualified person to be positioned at the remote consist(s) to observe brake pistons.

**3.0 RSC (Safety Control System)**

**3.1 Locomotive Safety Control System and Test Procedure**

Except as provided for in Item 3.2 of these instructions, every controlling locomotive must be equipped with an operative safety control system capable of initiating a full service brake application and removing all tractive effort in the event that the locomotive engineer becomes inattentive or incapacitated.

A controlling locomotive must be equipped with a reset safety control (RSC) except when in yard or designated service. A controlling locomotive in yard or designated service must be equipped with a RSC or a safety control foot pedal.

**Test Procedure**

Step	Description
1	Ensure the locomotive is protected from unintended movement.
2	Ensure the safety control valve or switch is cut-IN and sealed.
3	Initiate a penalty brake application by placing the automatic and independent brake handles in release position.
4	Ensure the audible alarm and warning lights (RSC) or warning whistle (safety control foot pedal) is functioning.
5	Ensure the PC, PCS, or Power Off indicator light illuminates.
6	Ensure equalizing reservoir pressure reduces to zero.
7	Recover Penalty brake application.

**3.2 Movement with a Defective Safety Control System: Road Locomotives**

A movement must not depart an initial terminal or regular crew change location with a defective safety control system on the controlling locomotive.

**NOTE:** The Safety Control System on a locomotive is considered defective, when the activation of the RSC fails to initiate a penalty brake application as required.

The safety control cock or switch must be cut-IN and sealed at all times, except for enroute malfunctions. Any practice or action which otherwise interferes with the normal and

proper functioning of this equipment will be considered a dismissible offence.

**NOTE:** If a safety control system seal is found to be missing, but the safety control system is functioning properly, the locomotive may continue in service providing all of the following actions are performed:

- Check the Crew to Crew form and with the Central Locomotive Specialist (CLS) to ensure that the safety control system has no known malfunctions.
- Test the Safety Control system as per Item 3.1.
- If the safety control system is functioning properly, record on the Crew to Crew form and advise CLS that "Locomotive CP XXXX Safety Control system seal is missing, no other malfunctions."

On en route locomotives, the seal must be replaced upon arrival at Coquitlam, Calgary, Winnipeg, Toronto or Montreal.

If the safety control system completely malfunctions while enroute (e.g., non-recoverable penalty brake application), then the locomotive engineer must:

Step	Description
1	Immediately notify the RTC and the Central Locomotive Specialist of the situation and record the defect on the Crew to Crew Form.
2	Cut out the Safety Control cock or switch.
3	Proceed to the first location where the controlling locomotive can be exchanged with another locomotive with an operative RSC.
4	In the event that an exchange locomotive is not available, the movement may proceed to the next regular crew change location and must not proceed beyond that point until the safety control system has been repaired or the defective locomotive replaced.

13

### 3.3 Movement with a Defective Safety Control System: Yard Locomotives

In the event of a complete malfunction of the safety control system on a yard locomotive while in active service, the safety control system may be cut-out and the locomotive may be operated to a repair facility or to the regular tie-up track within that yard. The Central Locomotive Specialist must be advised.

### 3.4 Defective Locomotive Event Recorder

If it is determined by the Central Locomotive Specialist or other Mechanical Service's Employee that the event recorder has failed on a controlling locomotive, be governed by items 3.2 and 3.3 (e.g., defective Safety Control Systems on road and yard locomotives).

**NOTE:** If the alarm on a RSC is operating erratically, the event recorder may be defective and the provisions for a defective Safety Control System apply. This determination will be made by the Locomotive Specialist.

## 4.0 Locomotive and Yard Test Plant Air Pressure Settings

### 4.1 Brake Pipe Pressure

Standard brake pipe pressure with automatic brake handle in release position:

- for passenger service is 90 psi.
- for freight service is 90 psi.
- yard test plant is 75 psi.

Specific trains or territories may require brake pipe pressure to be set higher or lower than standard.

**Note:** beltpack (RCLS) locomotives may operate at 85 psi until a 90 psi software modification is complete).

### 4.2 Main Reservoir/Brake Pipe Pressure Differential

With the automatic brake handle in release position, main reservoir pressure must be at least 15 psi higher than locomotive brake pipe pressure.

### 4.3 Independent Brake Cylinder Pressure

With the independent brake handle in full application position, brake cylinder pressure must be set to the pressure posted in the locomotive cab.

### 4.4 Equalizing Reservoir / Brake Pipe Pressure

The maximum variance between equalizing reservoir and locomotive brake pipe pressure is 3 psi with the automatic brake handle in the release position.

### 4.5 Enroute Brake Pipe Pressure Requirements

If brake pipe air flow exceeds 60 CFM or brake pipe gradient (between lead locomotive and rear car) exceeds 15 psi, when automatic brake handle is in the release position, other than during intended brake application and/or release activity, corrective action must be taken if the flow or gradient do not return to acceptable limits within a reasonable period of time.

This may include stopping the train at the next available location and inspecting for leaks.

**5.0 Train Brake Tests**

**NOTE:** A freight train having received a No.1 or 1A brake test may only depart a terminal if:

- a) the train line brake pipe pressure on the tail end of the train is within fifteen (15) psi of the locomotive brake pipe pressure, and,
- b) air flow to the brake pipe does not exceed sixty (60) cubic feet per minute, as indicated by the flow indicator or brake pipe leakage does not exceed five (5) psi in sixty (60) seconds.

**5.1 Brake Test Overview**

Follow the train air brake test procedure described in 5.2, and 5.3 to complete each of the brake tests outlined below. Please refer to the detailed instructions for each of these train air brake tests on the next pages.

Test	Item	Location	Performed by	Operative Brakes	Car Brakes Inspected
No 1	6.0	Safety inspection location	Certified Car Inspector	95%	All
No 1-A	7.0	Initial (not a safety inspection location) and / or En Route	Train Crew, and/or Certified Car Inspector	85%	All or Cars added + rear car
Continuity	9.0	Initial or En route	Train Crew, and/or Certified Car Inspector	95% or 85%	Last piece of equipment
Transfer	15.3	Prior to departure, the locomotive engineer, or RCLS operator must verify that there is sufficient braking effort to control the transfer, confirmed by a running test as soon as possible. Note: Except where block signals provide protection, transfers must have air applied throughout the entire equipment consist and the last three cars, if applicable must be verified to have operative brakes. (Train Brake Status may be used)			
<b>Note:</b> if an emergency brake application occurs while performing any of the above brake tests, then consider the test unsuccessful. The brake test must be repeated until a service brake application applies properly (without going in emergency).					

**5.2 Before performing a train brake test complete the following steps:**

Step	Description
1	Properly position all cocks and valves.
2	Couple brake pipe air hoses.
3	Release hand brakes unless required because of grade.
4	Ensure the rear car is charged to within 15 psi of locomotive brake pipe pressure.
5	If using the Air Flow Method, the Air Flow Indicator must be calibrated. (Indicator at or below 60 cfm.)

**5.3 Train Brake Test Procedure: Air Flow Method**

The Air Flow Method is the preferred Train Brake Test Method. To use this method, the controlling locomotive must:

- be equipped with an EPIC or CCB electronic brake controller or 26L or equivalent brake equipment,
- have an operative Air Flow Indicator.

Step	Description
1	When a signal is given to apply the brakes, make a full service brake pipe reduction.
2	When a signal is given to release the brakes, release the automatic brake.
3	Report the train brake test results to the conductor or locomotive engineer.

13

**5.4 Train Brake Test Procedure: Brake Pipe Leakage Method**

**Note:** Use this method only if the Air Flow Method cannot be used.

Step	Description
1	When a signal is given to apply the brakes, make a 15 psi brake pipe reduction.
2	When exhaust ceases, wait 60 seconds.
3	Cut-out the automatic brake. Wait 60seconds.
4	Note brake pipe pressure. Wait 60 seconds.
5	Note brake pipe pressure again. Pressure drop must not have exceeded 5 psi.
6	Reduce equalizing reservoir pressure 3 psi below brake pipe pressure.
7	Cut-in the automatic brake.
8	Make a full service brake pipe reduction.
9	When a signal is given to release the brakes, release the automatic brake.
10	Report the train brake test results to the conductor or locomotive engineer.

**5.5 Use of TIBS**

On trains equipped with TIBS, the decrease and increase of rear car brake pipe pressure as displayed in the controlling locomotive cab, will provide an indication of the application and release of the air brake on the rear car and of continuity between the locomotive and the rear car.

**5.6 Inspecting for Brake Release**

To determine if the brakes are released, either a standing inspection, or a pull-by inspection at a speed not exceeding 5 MPH is acceptable. When a pull-by inspection is performed, radio communication with the locomotive engineer must be maintained. The locomotive engineer must be advised of the results of the inspection.

**6.0 No 1 Brake Test**

**6.1 A No 1 Brake Test:**

- is performed by a certified car inspector
  - where a train is made up or on cars added or interchanged at a safety inspection location,
  - and while enroute at any subsequent safety inspection location(s) designated for that train.
- verifies the integrity and continuity of the brake pipe.
- verifies piston travel and the condition of brake rigging on each car in the train.
- verifies the application and release of air brakes on each car in the train.

**Exception:** A No 1 brake test is not required on: Trains operating over main tracks, between yards, up to a maximum of a thirty (30) mile radius, which are engaged exclusively in the setting off or lifting of equipment at industry(s), and/or the transfer of equipment between yards.

- 6.2** If a train is made up at other than a safety inspection location, a No 1 brake test will be performed at the first safety inspection location designated for that train.
- 6.3** At locations where a No 1 brake test has been performed, the conductor or locomotive engineer, is responsible to ensure that the brake status information for that train is recorded on the Crew to Crew Form. The results of this brake test may be obtained in writing, in person, or by radio from a person who has immediate access to the test results.
- 6.4 Perform the No 1 Brake Test following the procedures described in items 5.2 and 5.3.**

**7.0 No 1-A Brake Test****7.1 A No 1-A Brake Test:**

- is performed by the train crew or a certified car inspector:
  - where a train is made up at other than a safety inspection location.
  - when an enroute train is extensively switched, except where solid blocks of 2 or more cars are remarshalled within the same train.
  - at an interchange location when Train Brake Status records are not available.
  - when cars which have not been previously tested are added to a train.
  - on trains operating over main tracks, between yards, up to a maximum of a thirty (30) mile radius, which are engaged exclusively in the setting off or lifting of equipment at industry(s), and/or the transfer of equipment between yards.
- verifies the integrity and continuity of the brake pipe.
- verifies the application and release of air brakes on each car in the train.

**7.2 Perform the No 1-A Brake Test following the procedures described in items 5.2 and 5.3.****8.0 Cars Brake Tested Prior to Adding to a Train****8.1 A No 1A Brake Test is not required on blocks of cars lifted en-route that have:**

- previously received a No.1 brake test; and/or
- previously received a No.1A brake test at that location within twenty-four (24) hours of the lift.

**Note:** In both circumstances the brake status information must be received.

**8.2 Cars Brake Tested Prior to Adding to a Train**

When it is required to perform a brake test on cars before adding them to the train and it is not possible to determine brake pipe pressure on the last car being added, the brake test may be performed when:

- the last car being added has had the air cut in for at least 5 minutes, AND
- it is verified that the Air Flow indicator is calibrated.

After the cars are placed on the train, a **Continuity Test** must be performed before proceeding.

**9.0 Continuity Test****9.1 A Continuity Test**

- is performed by a qualified person(s) when:
  - solid block(s) of coupled cars which have received a No 1 or No 1A brake test are added to a train.
  - the controlling locomotive has been attached to a train which has received a No 1 or No 1A brake test.
  - the locomotive consist has been exchanged or altered.
  - the locomotive engineer has been changed.
  - controlling ends of a locomotive consist or a push-pull train operation have been changed.
- verifies the capability to transmit a signal between the leading locomotive, to the rear of the last piece of equipment on the train.

**9.2** When the brake pipe has been uncoupled to set off cars or the trailing locomotive(s) in the consist, and when cars or locomotives have not been added to the train, it is only necessary to re-couple the brake pipe and establish brake pipe continuity (e.g. air rising on last piece of equipment).

**9.3** A locomotive engineer must perform a brake pipe continuity test immediately prior to leaving if:

- the train does not leave the terminal immediately upon completion of the brake test,
- stops are made and there is public access to the train,
- public crossings are blocked,
- any time that brake pipe continuity is suspect.

**OR**

- when performing a crew change continuity test, the inbound engineer performs Steps 1, 2 and the note and the outgoing engineer performs steps 3, 4 and 5. Integrity must be confirmed.

9.4 Continuity Test Procedure:

Step	Description
1	Make at least a 15 psi brake pipe reduction and ensure that brake pipe pressure has decreased at the rear of the train.
2	Wait for the exhaust to cease.
<b>Note</b>	On Distributed Power trains, the remote brake valve/feed valve(s) must be cut out prior to releasing the automatic brake.
3	When ready to proceed, release the automatic brake.
4	Ensure that brake pipe pressure is increasing at the rear of the train.
5	Train may be started after the brakes release.

9.5 Commuter trains which are not equipped with a calibrated air flow indicator.

If you are performing a **continuity** test after changing ends, you are exempt from the requirements of GOI Section 13, item 5.2, step 5 (air flow indicator calibration) and item 5.4 (brake pipe leakage test). Ensure rear of train is charged to within 15 PSI of head end and when given a signal to apply the brakes, make a full service reduction. This only applies on commuter trains and only applies when performing a **continuity** test after changing ends. If you are performing a No 1 or No 1A brake test, then you must perform a brake pipe leakage test.

10.0 Brake Pipe Continuity Test (ECP Trains)

10.1 Although the ECP system has safeguards built in to protect continuity, the following test can be used to confirm brake pipe continuity through the train.

10.2 Continuity Test Procedure for ECP Trains:

Step	Description
1	Command a full service brake application (100% TBC) and note the slight drop in brake pipe pressure at the rear of the train. <b>Note:</b> On a Wired Distributed Power train, the Feed Valve(s) must be cut-out on the remote(s) prior to commanding the full service brake application.
2	When the main operating screen indicates that Train Brake Effort (TBE) reaches 85% or greater, then release the brake immediately (0% TBC).
3	Look for the rise of brake pipe pressure on the EOT.
4	On Wired Distributed Power trains feed valve(s) on the remote(s) can now be cut in.

11.0 Running Brake Test

11.1 A running brake test must be made on all trains prior to descending grades of 2 percent or greater and at locations specified in special instructions.

A running brake test of passenger train brakes must be made after leaving any location where any standing train air brake test was made.

11.2 Running Brake Test Procedure

Step	Description
1	When the speed of the train permits, apply the train brakes with sufficient force to verify the brakes are operating properly.
2	The locomotive brakes should not be allowed to apply at this time.
3	If the brakes do not operate properly, immediately stop the train, determine and correct the cause of failure, then repeat the running brake test.



**12.0 Train Brake Test Using a Backup Hose or Valve**

12.1 Before starting a train from any location where the air brakes are to be controlled by the use of a back-up hose or valve at the rear of the train, the air brakes must be tested as follows:

Step	Description
1	When a signal is received from the rear of the train that the brakes are to be applied, the locomotive engineer will cut out the automatic brake.
2	When a signal is received from the rear of the train that the brakes are to be released, the locomotive engineer will cut in the automatic brake.
3	It must be verified that the train brakes have been applied and have released at the front and the rear of the train.

**13.0 Snow Plow Brake Test**

13.1 Following the appropriate train brake test, and before starting a snow plow operation, an emergency application of train brakes must be obtained from the operator's cab of the snow plow.

**14.0 Block Swaps**

14.1 A maximum of two (2) solid coupled block(s) of 2 or more cars removed from a train may be added to another train, or CUT INTO the same train, with only a Continuity test, provided that:

Item	Condition
1	Each block of cars being added has: <ul style="list-style-type: none"> <li>• received a No 1 brake test at a prior location, and</li> <li>• remained coupled together, and</li> <li>• been off air for less than 24 hours (48 hours with notification to TC)</li> <li>• train brake status information that includes:                             <ul style="list-style-type: none"> <li>- date</li> <li>- location</li> <li>- number of cars previously tested with a No 1 brake test</li> <li>- car number and location of any car in the block with inoperative brakes</li> </ul> </li> </ul>
2	The conductor or locomotive engineer must: <ul style="list-style-type: none"> <li>• receive the train brake status information for those cars being added (in writing or verbally), and</li> <li>• update the train brake status information on the Crew to Crew Form.</li> </ul>

**15.0 Transfer Movements**

**15.1 Transfer Brake Test**

A brake test is NOT required for transfer movements, providing:

Prior to departure, the locomotive engineer, or the RCLS operator must verify that there is sufficient braking effort to control the transfer, confirmed by a running test as soon as possible.

Except where block signals provide protection, transfers must have air applied throughout the entire equipment consist and the last three cars, if applicable, must be verified to have operative brakes.

**IMPORTANT:** Transfers carrying dangerous goods MUST have air cut-IN throughout the equipment consist, without exception.

13

**16.0 Movement of Cars and Locomotives with Inoperative Brakes**

**16.1** Cars and locomotives with inoperative brakes may be moved in trains for the purpose of unloading or for repair if all applicable parts of this section are complied with.

Prior to departure, the conductor or locomotive engineer must be notified of any inoperative car or locomotive brakes, and their location.

Inoperative brake information must be recorded on the Crew to Crew Form, and on Form 1225.

**16.2 To calculate the percentage of operative train brakes, include both locomotives and cars.**

**16.3 Safety Inspection Locations - 95 percent operative brakes**

Item	Requirements and Exceptions
1	When a train is made up at a safety inspection location, it must have 95 percent operative train brakes.
	Exception: Trains destined for the USA must have 100 percent operative brakes when leaving the latter of origin or safety inspection location.
2	Cars permitted to depart from a safety inspection location with inoperative brakes, may be moved only for unloading or for repair.
3	When cars are added to a train at a safety inspection location, the train must not depart unless a minimum of 95 percent of the brakes on those cars added are operative.
4	When it is impractical to comply with the 95 percent requirements, trains of 18 cars or less may leave a safety inspection location with no less than 85 percent operative brakes. Appropriate actions must be taken to ensure safe operation (e.g., reduce speed).
5	Cars or locomotives with brakes inoperative <u>due to damage</u> may be moved in a train with less than 95 percent operative brakes when authorized by a person in charge who will ensure that appropriate measures have been taken to move such equipment safely.

**16.4 Locations other than Safety Inspection Locations - 85 percent operative brakes**

Item	Requirements and Exceptions
1	A freight train must not be operated with less than 85 percent of train brakes operative, except as provided in item 2 below.
2	Cars or locomotives with brakes inoperative <u>due to damage</u> may be moved in a train with less than 85 percent operative brakes when authorized by a person in charge who will ensure that appropriate measures have been taken to move such equipment safely.
3	A passenger train must not be operated with less than 85 percent of train brakes operative, unless an appropriate reduction in train speed, as determined by the locomotive engineer, is made.

**16.5 Locomotives with inoperative brakes:**

Item	Requirements
1	The lead locomotive must have operative brakes at all times.
2	The air brake system of all trailing locomotives must be cut-IN so as to respond to the operation of the automatic brake and independent brake in the controlling locomotive, except when a locomotive with inoperative brakes is being moved for repair.
3	The locomotive engineer must be advised prior to departure when a locomotive in the consist has inoperative brakes.
4	When a locomotive in a consist has inoperative brakes, the locomotive engineer must take appropriate measures to ensure safety of movement.
5	No more than 2 locomotives with inoperative brakes may be handled in a locomotive consist. (They may be coupled together.)



16.6 Cars with inoperative brakes:

Item	Requirements
1	Cut-out the brakes on all cars or trucks, where appropriate. (Complete Form 1225.)
2	No more than 2 cars with inoperative brakes may be coupled together, except in the case of item 3 below.
3	Multi-platform articulated cars must not be operated with more than 2 consecutive control valves cut out. (typically 3 control valves on a 5 platform car).
4	<p>The rear 3 cars (cars, equipment or locomotives) of a freight train must have operative brakes, except:</p> <ul style="list-style-type: none"> <li>- a 2 axle scale test car without brakes may be moved in a freight train provided it is placed ahead of the rear car of the train and it is coupled to cars with operative brakes.</li> <li>- other test cars (e.g. Track Evaluation Cars) may be moved at the rear of a freight train for test purposes, provided it is coupled to a car with operative brakes.</li> </ul> <p><b>Note:</b> on cars of articulated or permanently coupled multi-platform design, at least fifty (50) per cent of the control valves must be operational for car to be considered as having operative brakes.</p> <p>In accordance with company procedures, the person in charge may move cars or locomotives with inoperative brakes, due to damage enroute, at the rear of the train when no other option exists.</p>
5	The rear car of a passenger train must have operative brakes on one truck.
6	Railway equipment which is designed without brakes may operate in a freight train.

17.0 Recording the Train Brake Status

17.1 Train Brake Status following No 1 or No 1A Brake Test

The results of a No 1 brake test, including pre-tested blocks of cars, will be recorded on a Train Brake Status form in a readily accessible computer file.

If assistance is required to retrieve Train Brake Status, contact the Central Locomotive Specialist at 1-800-308-6426.

Crews will receive the results of a No 1 brake test verbally or will receive a copy of the Train Brake Status form from the file and immediately record these results in Part 5 of the Crew to Crew Form (see example). At locations where a train receives a No 1 or No 1A brake test, the conductor must record the following information on the Crew to Crew Form in the Grey Box: date, Conductor or Carman's name, train ID, location, number of cars on the train, "OK" or any exceptions.

Example:

**Train Brake Status:** (GOI Sec. 13 – 17.0 or ABTHR Section 9)

No 1	brake test performed at	Toronto Yard	by	Carman Jones
No 1, No 1A, Class 1, Class 1A	Location		conductor/ carman	
at	10:25	12-25-2003	Number of cars tested	49
time		date		
CP 203458 C/O 13 cars from head end				
List of cars "cut-out" or all "OK"				

17.2 Updating the Train Brake Status

Prior to arriving at each crew change point or terminal enroute, the conductor must update Part 5 of the Crew to Crew Form, (see example) indicating the date, conductor's name, train ID, name of crew change point or terminal, number of cars on the train, "OK" or any exceptions noted.

The originating crew who has recorded the results of the No 1 or No 1A brake test, in the Grey Box, is also required to record brake status when the train arrives at the next crew change point or terminal. All other crews must ensure brake status is updated and recorded, as per example below, prior to delivery at the next crew change point or terminal, regardless if any changes have occurred.

Example:

Date	Conductor	Station Name	Car Total	List cars "cut-out" or all "OK"	Location from Eng	Rear Car Pressure
12/25	Green	MacTier	49	CP 203458 C/O	13	88 PSI
12/26	Adams	Cartier	49	CP 203458 C/O	13	87 PSI

The **original** and **subsequent** Crew to Crew Form(s) must be kept with the other documents (waybills, consist, etc.) while enroute. At locations where locomotives are changed off and/or sent to the shop, a copy of this form(s) must be left with the other documents (waybills, consist, etc.), not on the locomotives. The

13

conductor is responsible to ensure the proper handling of these documents. The conductor must make Train Brake Status available to the locomotive engineer prior to leaving a crew change point or terminal.

The **original** and **subsequent** Crew to Crew form(s) must remain with the train to destination. The Crew to Crew form(s) must be kept current and updated prior to delivery at the next crew change point or terminal. (i.e. when picking up and setting out cars enroute)

On arrival at the final destination the original and subsequent Crew to Crew form(s) must be submitted and retained for a period of thirty (30) days.

The requirement to record train brake status does not change any other reporting requirements. Crews are reminded of the requirements of GOI Section 5, item 16.0 "Reporting Detention or Defects" which requires the conductor to complete Form 1225 when repairs have been made enroute, including any air brakes which have been cut out.

### 17.3 Train Brake Status Lost Enroute

If the record of Train Brake Status is not available at a crew change point, and if the incoming crew cannot be contacted to verbally provide train brake status, then a No 1 or No 1A brake test must be performed before the train may proceed. This information must be recorded in the **Grey Box**.

**The following Q & A's are provided to further clarify the instructions:**

**Q.** I am on a train that does not have Train Brake Status form (Crew to Crew). We have contacted our immediate supervisor and they have contacted the incoming conductor who has provided the necessary information. Is it acceptable for the supervisor to relay this information?

**A.** Yes, the information, including who provided it, must be noted on the Crew to Crew form.

**Q.** I have entered the relayed information on to part 5 of a new Crew to Crew form. Do I need the initial information from the No 1 brake test at the originating terminal to enter into the Grey Box?

**A.** No, provided the incoming conductor has confirmed that the initial brake test information was provided or the RTC / Locomotive Specialist confirms that it is available, a notation can be made in the Gray Box that the initial

Train Brake Status form is missing and the information can be obtained from the central locomotive specialist. The only exception is a train destined to the USA must have the Grey box information filled out, including the full name of the individual who performed the test (i.e.: initials are not acceptable and the name must be legible).

**Q.** I am on a train at its initial location and have been informed that a No 1 brake test has been performed on the train, however there is no Train Brake Status information available on the train. What process do I follow in regards to receiving the information?

**A.** First contact the mechanical personnel or your immediate supervisor to provide the necessary information. If unavailable, then the central locomotive specialist would be contacted for the information. **Note:** The central locomotive specialist can only provide the information to the train at its original made up location as they cannot account for cars that may have been lifted or set off enroute.

**Q.** What are the procedures in regards to the Train Brake Status information when changing off with an incoming crew from another railway at interchange?

**A.** The Train Brake Status may be available in several forms. It can be provided on a separate Train Brake Status Form or a document similar to our CP Crew to Crew form. In other situations, the information can be obtained from the other railways train consist. This process may differ from railway to railway and for that reason, your local supervisor can best advise as to the procedure required in your area. As per item 18.3, the Brake Status information must be transferred to CP's Crew to Crew form and maintained and updated as required.

**Q.** If the Train Brake Status information in the Grey box is missing, however the previous crew(s) have entered the brake status information in the non shaded area of Part 5, is it permissible to depart with this information?

**A.** Yes, it is permissible to depart. In this case you would contact the RTC or the Central Locomotive Specialist and confirm that the initial Brake Test information is available and make the notation in the Grey Box. As stated above the CLS will not provide the information of the initial test, as they cannot account for cars that may have been lifted or set off enroute, but they can confirm that the information is available.

**18.0 Trains for Interchange****18.1 Entering the USA from Canada**

Trains which are destined for the United States of America (USA) must have 100 percent operative brakes upon departure from the latter of the initial terminal or an enroute safety inspection location. No train may be operated into the USA at any time with less than 85 percent operative brakes. Cars destined for the USA with inoperative brakes or any other identified safety defects must not be moved past the next location where repairs of that type can reasonably be made.

A Crew to Crew Form, complete with train brake status information should be made available for train crews receiving trains from Canada.

**18.2 Entering Canada from the USA**

When a train enters Canada from the USA and is accompanied with train brake status information which verifies that a prior initial terminal or 1000 mile brake test has been performed on that train, then a No 1 or No 1A brake test is not required. In this case, a Continuity test must be performed.

The train brake status information received at interchange must be transferred to CP's Crew to Crew Form and continue to be maintained and updated as required.

If the necessary train brake status information does not accompany the train, then a No 1 or No 1A brake test must be performed.

**18.3 Trains Interchanging within Canada**

When a train is received from another railway within Canada and is accompanied with train brake status information, then another No 1 or No 1A brake test is not required. In this case, a Continuity test must be performed.

The train brake status information received at interchange must be transferred to CP's Crew to Crew Form and continue to be maintained and updated as required.

If the necessary train brake status information does not accompany the train, then a No 1 or No 1A brake test must be performed.

A Crew to Crew Form, complete with train brake status information should be made available for train crews of other railways receiving trains from CP.