

Air Brake Train Handling



5003.2 To cut out an air brake on a car:

1. Close the cut-out cock in the brake pipe branch pipe by placing the handle in line with the pipe,
2. Release all air pressure from reservoirs by holding the brake cylinder release rod to its fullest travel until the air has exhausted,
3. Verify that the brake cylinder piston retracts into the brake cylinder, and
4. Verify that the brake shoes are away from the wheels.

5003.3 After cutting out the air brakes on a car, or when picking up a car that has been tagged due to inoperative air brakes:

1. Notify the locomotive operator and the train dispatcher,
2. Apply a completed Air Brake Cut-Out Tag to the brake pipe branch pipe cut-out cock,
3. Check for the presence of a completed defective equipment tag on both sides of the freight car when picking up a car known to have inoperative brakes, and
4. Provide information regarding the location of a freight car(s) having inoperative air brakes in Section 6 of the brake test certificate and on CSXT train documentation.

5003.4 When the car's air brakes have been cut out while enroute:

1. Set the car out at the next point where it can be repaired, and
2. If the next point is beyond the end of your run, notify the train dispatcher about the car.

5004 - Standard Brake Pipe Pressure

5004.1 Standard Brake Pipe Pressure must be adjusted to:

- a. 110 PSI on Passenger Trains, including Amtrak's "Auto Trains", or
- b. 90 PSI on all other trains including trains with freight and passenger cars.

5005 - Avoiding an Overcharge Condition

5005.1 When doubling cars or coupling cars to a train, make a full service brake pipe reduction after coupling is made and before the angle cock is opened.

5005.2 When charging a train from other than the head end, adjust the brake pipe pressure to 15 PSI below the standard pressure for that train.

Chapter 2 - Locomotive Air Brake Equipment

5051 - Monitoring Brakes

- 5051.1** When applying train brakes, monitor equalizing reservoir pressure because the brake pipe pressure will reduce at a slower rate.
- 5051.2** Monitor all locomotive air pressure gauges and indications to detect changes that may affect the operation of the locomotive or train.

5052 - Adjusting Brake Equipment

- 5052.1** When adjusting equalizing reservoir pressure the automatic brake handle must be placed in the RELEASE position with the automatic brake valve cut OUT.
- 5052.2** When cutting in the automatic brake:
1. The automatic brake handle must be placed in the RELEASE position, and
 2. Note equalizing reservoir pressure is not increasing before placing the automatic brake cut-out valve to the IN position.

5053 - Ensuring Proper Brake Cylinder Pressure

- 5053.1** Excessive Locomotive Brake Cylinder Piston Travel must be reported when the actual piston travel is within 2 inches of the maximum piston travel shown in block 10 on Form FRA-F6180-49A.
- 5053.2** If the locomotive brake cylinder pressure reading differs by 3 PSI or more from posted plate or decal inside the cab when brake is fully applied, report the condition on the Locomotive Work Report.
- 5053.3** The locomotive brake cylinder pressure adjustment must not be altered.
- 5053.4** Do not block the independent brake so that it actuates the air brakes continuously.

5054 - PASS Position

- 5054.1** Do not use the "PASS" position on a 3-position automatic brake cut-out valve in freight service.
- 5054.2** The "PASS" position on a 3-position brake cut-out valve may only be used when:
1. In passenger service, and
 2. Each car's control valve is set for graduated release.

Chapter 3 - Air Brake Test, General Requirements

5101 - Performing Air Brake Tests

- 5101.1** Only qualified personnel may operate air brake controls on a locomotive for the purpose of performing air brake tests.
- 5101.2** When performing air brake tests, air pressure must be determined at the rear of the train or cut of cars by:
- a. Telemetry that has been qualified, or
 - b. An air gauge on a locomotive coupled to the rear of the train or cut of cars, or
 - c. An air gauge in the EOT or marker unit, or
 - d. An accurate hand-held air gauge.
- 5101.3** When performing air brake tests, it must be determined that air brakes on the rear of the train or cut of cars have applied and released by:
- a. Qualified Telemetry, or
 - b. Observing that the brake cylinder piston properly responds to air brake operation, or
 - c. Observing that a brake pipe gauge at the rear of the train responds to air brake operation.
- Note: When an air brake test is performed, a 5 PSI brake pipe reduction indicates application and a 5 PSI brake pipe increase after an application is made indicates a release.*
- 5101.4** After an air brake test, make certain brake pipe pressure is being restored at the rear of the train before proceeding.

Chapter 5 - Performing Train Air Brake Inspections and Tests

5201 - Inspection of Brake Equipment

5201.1 Prior to performing a brake test, make certain that:

1. Air hoses are in serviceable condition and properly coupled,
2. The regulating valve is adjusted to the standard pressure for the train being tested,
3. Angle cocks, end cocks, and cutout cocks are properly positioned, and
4. If the train is equipped with electro-pneumatic brakes, brake circuit cables are properly connected.

5202 - Methods for Testing Brake Pipe Leakage

5202.1 When equipped with an air flow indicator use the Air Flow Method (AFM) to test brake pipe leakage by:

1. Charging the brake pipe pressure at the rear car to 75 PSI for freight train and 95 PSI for passenger trains,
2. Verifying that the airflow indicator shows 60 CFM or less,
3. Obtaining the required signal to begin test,
4. Making a 20 PSI brake pipe reduction and allow brake pipe exhaust to stop, and
5. Receiving the required signal before releasing the air brakes.

5202.2 If your train is not equipped to permit an AFM test, make a Brake Pipe Leakage Test by:

1. Charging the brake pipe pressure at the rear car to 75 PSI for freight train and 95 PSI for passenger trains,
2. Obtaining the required signal to begin the test,
3. Making a 20 PSI brake pipe reduction and allow brake pipe exhaust to stop,
4. Cutting out the automatic brake and wait one minute,
5. Noting the brake pipe pressure and measure brake pipe leakage one additional minute, and
6. Receiving the required signal before releasing the air brakes.

5202.3 If leakage test reveals air flow is greater than 60 CFM or exceeds 5 PSI per minute:

1. Notify employee inspecting cars,
2. Inspect the brake pipe for leaks,
3. Make necessary repairs, and
4. Retest.

5202.4 Verify or enter brake pipe leakage information on the brake test certificate. Information must be recorded as “AFM” when the airflow method has been used or the amount of leakage per minute when the brake pipe leakage method has been used.

5203 - Class I Brake Test

5203.1 A Class I brake test must be performed on the entire train:

- a. Where the train is originally assembled, or
- b. At the train’s point of origin (initial terminal) regardless of where the cars were assembled except trains received at interchange, or
- c. When the train has been off of air more than four hours, or
- d. When adding or removing more than one solid block of cars, or
- e. When a unit or cycle train designated in special instructions, has traveled 3,000 miles since its last Class I test, or
- f. By a qualified mechanical inspector at destination, when an extended haul train is designated in special instructions and has traveled 1,500 miles.

5203.2 A Class I brake test is not required on the entire train:

- a. When removing a single car or one solid block of cars, or
- b. When adding a previously tested car or one previously tested solid block of cars, or
- c. Removing defective cars regardless of the number or location of defective cars, or
- d. Change in locomotive consist or EOT, or
- e. Any combination of the above.

5203.3 Before being added to a train at an intermediate location, cars must receive a Class I brake test.

5203.4 A solid block of cars can be added to a through train without performing a Class I brake test on the entire train as long as the cars being added are:

1. Assembled into one block and receive a Class I brake test as one block, and
2. Not off air for more than four hours before being added to the train.

5203.5 A solid block of cars that receive a Class I brake test as one solid block may be placed in multiple tracks prior to being added to a through train so long as the cars are:

1. Reassembled in the same standing order before being added to a through train, and
2. Not off air more than four hours before being added to a through train.

5203.6 When a train is split at a location, only one section of the train may be designated as the continuing train. The continuing train must retain the original train ID. The other sections of the train:

- a. May be added as a solid block of cars to another through train, or
- b. Must have a Class I brake test if the section becomes an originating train or part of an originating train.

5204 - Class III Brake Test

5204.1 Perform a Class III brake test when cars have not been off air for more than 4 hours:

- a. Class III Train Line Continuity test when the train has been separated and recoupled without any change to the train's consist, or
- b. Train Consist Change test when:
 - a. A locomotive or caboose is changed, or
 - b. A car or solid block of cars is removed from the train, or
 - c. At locations other than the train's initial terminal, and cars added from a previous train have remained coupled in same order with the train line remaining connected unless:
 - a) Removing defective equipment from the solid block, or
 - b) Separated into multiple blocks due to track constraints and the cars will be re-coupled in the same order as removed.

5205 - Transfer Brake Test

5205.1 Perform a Transfer Train brake test on cars not previously tested when making a transfer train movement that will not exceed 20 miles.

5206 - Helper Brake Test

5206.1 Perform a Helper Service brake test anytime a helper locomotive is added to a train.

5207 - Class IA Air Brake Test

5207.1 Perform a Class 1A brake test at points designated in Special Instructions.

5208 - Additional Inspections

5208.1 In addition to the inspections required when adding cars to a train, the following must be inspected when performing a brake test:

1. Air brake cylinder piston travel is correct when determined to be:
 - a. 6-9 inches on body mounted brakes, or
 - b. A maximum of 6 inches on truck-mounted brakes, or
 - c. As specified by the badge plate of the car.
2. Brake rigging does not bind or foul,
3. Brake equipment is properly secured,
4. Retaining valves are in the EXHAUST position,
5. Retaining valve pipes are in serviceable condition, and
6. Both sides of the car are examined during the inspection process to observe the functioning of all moving parts of the brake system.

5209 - Air Brake test Procedures

5209.1 Comply with the following chart when performing required brake test:

Action	Class I	Class IA	Class III Train Line Continuity	Class III Train Consist Change	Transfer	Helper
Pre-Test & Start of Test						
Safety Inspection	X	X		X	X	
Charge brake pipe to within 15 PSI of regulating valve setting	X, X ⁵	X		X	X	
Obtain required signal to begin test	X, X ⁵	X				
Leakage Test	X	X				
20 PSI Brake Pipe Reduction	X, X ⁵	X		X	X	X, ¹
Brake Application and Inspection on Rear Car						
All Cars	X	X			X	
Rear Car	X ⁵			X		X ²
Release Brakes						
All Cars	X, X ⁴					
Rear Car	X ⁵			X		X ³
Brake pipe restored on rear as indicated by gauge	X	X	X	X		

X ¹	If train brake is already applied, make additional 10 PSI brake pipe reduction.
X ²	Rear car or Helper locomotive(s) with visual inspection on each helper locomotive that brake system operates from a 20 PSI reduction initiated from controlling locomotive.
X ³	Rear car or Helper locomotive at the rear of the train.
X ⁴	Roll-by inspection permitted at speeds not exceeding 10 MPH and results must be communicated to the locomotive operator.
X ⁵	When test has been made using air source other than outbound locomotive.

Chapter 9 - Fundamentals of Trainhandling

5501 - General Train Handling Requirements

5501.1 Train Handling requires proper planning and use of the safest and most efficient train handling procedures, Locomotive Operators must not make rapid or severe slack changes.

5501.2 When planning and executing train handling procedures, the following must be considered:

1. Locomotive consist capabilities, including:
 - a. Distributive Power, or
 - b. Helper Locomotive
2. Train speed, weight, and length,
3. Number and position of loaded and empty cars,
4. Amount of brake pipe leakage,
5. Physical characteristics such as grade, curves, turnouts and fixed signals,
6. Authorized speed, and
7. Weather conditions.

5502 - Tractive Effort

5502.1 Maximum trailing tonnage for a train handled with head-end power only, will not exceed the tonnage rating for two (2) CW44ACs and one (1) C40-8 or CW40-8 locomotives.

5502.2 On grades where the tonnage limitation will be exceeded, trains must:

- a. Have a rear-end helper, or
- b. Have an appropriately positioned in-train helper, or
- c. Reduce tonnage.

5502.3 The number of powered axles in use must not exceed 27 when pulling a train or cut of cars.

5502.4 Helper locomotive consist must not exceed the equivalent axle value of the head end consist. When more axles than permitted are needed to move a train, the helper locomotive must be placed into the train with approximately 70% of the helper locomotive tonnage rating behind the helper locomotive.

5502.5 When calculating powered axles the locomotive operator must:

1. Count AC locomotives as 9 axles, and
2. When necessary to reduce powered axles, isolate locomotives from the rear of the consist forward.

5505.3 Actuate the independent brake:

- a. 4 seconds for each locomotive in the consist to ensure brakes are released on trailing locomotives, or
- b. Frequently when using the dynamic brakes and the train brakes at the same time, or
- c. In the position that will develop the required locomotive brake cylinder pressure when using the automatic brake and locomotive brake cylinder pressure is desired.

5506 - Train Braking with Automatic Brake

5506.1 When using the automatic brake, stop the train if and when you feel the train brake is not holding or slowing the trains speed properly. If necessary, stop the train using an emergency brake application and if equipped, using two-way telemetry.

5506.2 Initial brake pipe reductions must be:

- a. 6 to 8 pounds when the train brake system is fully charged, or
- b. At least 3 pounds greater than the total previous reduction when the train brake system is not fully recharged.

5506.3 When operating conditions permit, wait at least 20 seconds after the initial brake pipe reduction before making additional 2 to 3 pound intermediate brake pipe reductions.

5506.4 Locomotive Operators must not place the automatic brake beyond the suppression position to apply train brakes, except for placing train brakes in emergency.

5506.5 When making a final brake pipe reduction:

- a. Just prior to stopping, make sufficient brake pipe reduction that results in an exhaust from the brake pipe as stop is completed, or
- b. On passenger trains, the graduated release feature may be used.

5506.6 Except for emergency applications, or when required by rule, brake pipe reductions must not be made after brake pipe pressure reaches the point of equalization.

Brake Pipe Equalization Chart

Regulating Valve Setting	Reduction Required for Equalization (Full Service)	Pressure in Brake Pipe and Brake Cylinder
70 PSI	20 PSI	50 PSI
80 PSI	23 PSI	57 PSI
90 PSI	26 PSI	64 PSI
100 PSI	29 PSI	71 PSI
110 PSI	32 PSI	78 PSI

5507 - Dynamic Brake Operations - General

5507.1 In order for the dynamic brake to operate, the following switches and circuit breakers must be positioned as indicated:

Dynamic brake control circuit breaker, controlling locomotive	ON
Dynamic brake cut out switch	IN
Brake transfer circuit breaker	ON

5507.2 Locomotive Operators must determine the operational status of the dynamic brakes on all locomotives in the consist at:

- a. The initial terminal for a train, or
- b. Other locations where a Locomotive Operator first begins operation of a train.

5507.3 If status of the dynamic brakes cannot be determined, the Locomotive Operator must test the dynamic brakes at the first opportunity.

5507.4 Locomotive Operators must note any problem on the locomotive work report relating to the dynamic brake and provide information pertaining to the dynamic brake operation on the brake test certificate including:

1. Locomotive number,
2. Dynamic brake cut-out position,
3. Total number of dynamic brake axles, and
4. The total number of locomotives with inoperative dynamic brakes.

5507.5 When a locomotive is discovered as having an inoperative dynamic brake, a tag labeled Inoperative Dynamic Brake must be placed on the isolation switch. Once tagged the locomotive may continue in service for up to 30 days. The tag must contain the following:

1. Locomotive number,
2. Name of discovering carrier,
3. Location and date where condition was discovered, and
4. Signature of the person discovering the condition.

5507.6 Do not exceed the following maximum dynamic brake axle value for the locomotive consist:

- a. 27 – when all units have alignment control couplers, or
- b. 20 – when any unit has coupler limiting blocks, or
- c. Do not use dynamic braking when any locomotive in the consist is not equipped with alignment control couplers or coupler limiting blocks.

Dynamic Brake Axle Value

Locomotive Class	Axle Value	Locomotive Class	Axle Value
All 4-axle units except B40-8	4	SD70AC, SD70M	8
B40-8	5	CW44AC, CW44AH, ES44AC, ES44AH, ET44AC, ET44AH	9
All 6 axle units except SD60/M/I, SD70M, C/CW40-8, CW44-9, and ACs	6	SD70ACE	10
SD60/M/I, C/CW40-8, CW44-9, ES44DC, ES40DC, ES44C4, ET44C4	7	CW46AC, CW46AH	11

5507.7 When restricting the dynamic brake axle value, the locomotive operator must:

1. Place the dynamic brake cut-out switch in the OUT position,
2. Leave the dynamic brake on the controlling locomotive cut in, and
3. Report the status of the dynamic brake cut-out switch position in section 3 of the brake test certificate.

5507.8 When using dynamic brake through turnouts and crossovers and the dynamic brake axle value exceeds 12, do not exceed #4 position until the head one-third of the train clears turnouts or crossovers.

5507.9 If the dynamic brake warning light comes on, gradually reduce dynamic brake output until the light goes out.

Chapter 10 - Conventional Train Handling

5551 - Starting a Train

5551.1 When starting a train:

1. Allow sufficient time for the train air brakes to release,
2. When possible, start movement one car at a time using the lowest throttle position needed,
3. Do not exceed 2 MPH until the entire train is moving, and
4. Avoid using excessive tractive effort.

5551.2 Locomotive operators must handle the train in a safe and fuel-efficient manner and take full advantage of throttle adjustments and dynamic braking when conditions permit.

5552 - Dynamic Braking

5552.1 If in doubt that the train speed is slowing, stopping or controlled properly, supplement dynamic brakes with train brakes.

5552.2 Plan the use of dynamic brakes to avoid maximum braking through heavy curvature, crossovers, and turnouts.

5552.3 When applying dynamic brakes:

1. Make certain that the throttle is in IDLE for at least 10 seconds before transition to dynamic brake SETUP,
2. Allow time for the train's slack to adjust,
3. Apply the dynamic brake gradually allowing for slack to adjust, and
4. Make incremental adjustments to maintain or achieve the desired speed.

5552.4 When releasing dynamic brake:

1. Do so gradually, allowing for slack to adjust, and
2. When releasing the dynamic brake and automatic brake, keep the dynamic brake applied until the train's air brakes have released.

5552.5 Just prior to stopping, gradually apply the independent brake while moving the dynamic brake lever to the SETUP or OFF position.

5553 - Use of Automatic Brake

5553.1 When braking:

1. Begin far enough in advance to allow for a split service application, except when stopping with the slack bunched, and
2. Actuate the independent brake frequently to release locomotive brake cylinder pressure.

5553.2 When braking **Without Power**:

1. Reduce the throttle to IDLE allowing the slack to adjust, and
2. If necessary, use the dynamic brake or independent brake, if the dynamic brake is not available to adjust the slack prior to making the initial brake pipe reduction.

5553.3 When braking **With Power**:

1. Advance throttle, if necessary, using only enough power to adjust slack,
2. Observe locomotive output when making the initial brake pipe reduction , and
3. Make additional brake pipe reductions as necessary.

5553.4 When making a running release:

- a. After the desired braking has been accomplished, brakes may be released if:
 1. Brake pipe air is not exhausting,
 2. At least a 10 PSI brake pipe reduction has been made, and
 3. Brakes on the entire train will be released before the speed has reached:
 - a. 10 MPH for trains 120 cars or less, or
 - b. 15 MPH for trains over 120 cars.
- b. When slack is bunched, do not allow a run out of slack until the brakes have released, or
- c. Do not increase locomotive throttle while the brakes are releasing.

5553.5 When making a standing release and operating conditions permit:

1. Make a full service brake pipe reduction,
2. Make certain that brake pipe exhaust has stopped for at least 20 seconds before releasing the train brake, and
3. In locations where the independent brake will not hold the train, apply sufficient handbrakes to secure the train during recharge time.

5557 - Approaching and Operating Through Areas with Temporary Speed Restrictions

5557.1 When conditions permit, Locomotive Operators must:

1. Release the train air brakes before entering the restriction,
2. Minimize changes in train speed or slack condition, and
3. Limit dynamic brake position to #4.

5558 - Steep Grade (1% or more) Train Handling

5558.1 When approaching and descending steep grades, Locomotive Operators must:

1. Ensure the air brake system is charged to the required pressure before starting the descent,
2. Know the severity of the grade the train is on,
3. Take appropriate action to control train speed, and
4. When conditions warrant, apply train brakes and dynamic brakes before the movement begins.

5558.2 If necessary to reduce the brake pipe pressure by 18 PSI or more, do not:

1. Pull the train for more than 2 miles, and
2. Exceed 20 MPH.

5558.3 If the speed of the train cannot be maintained at or below authorized speed, immediately place the train in EMERGENCY.

5558.4 Apply train brakes using at least a 6 to 8 PSI brake pipe reduction in conjunction with dynamic braking when:

1. Operating in territories where both dynamic braking and pressure maintaining are required in lieu of retainer valves being set, and
2. Train speed is between 20 and 35 MPH.

5558.5 Use steep grade charts in the Time Table Special Instructions to identify steep grade locations and operating instructions.

5558.6 When calculating Effective Dynamic Brake Axles (EDBA) consider:

1. Helper or DP locomotives with working dynamic brakes as added EDBA value, and
2. Total trailing tonnage will include the weight of any locomotives not operating in dynamic brake mode.

5558.7 When controlling train speed on descending grade, use dynamic braking and if necessary, supplement with the automatic brake.

5558.8 Trains not meeting the minimum effective dynamic brake requirements must meet one of the following:

- a. Before proceeding, train must obtain additional locomotives, including helper locomotives to meet the EDDBA value, or
- b. Train speed will not exceed 15 MPH and the automatic brake pipe reduction does not attain 18 PSI or higher for a distance of 2 miles or more.

5558.9 Utilize the TTSI charts to define the minimum EDDBA for the type of train and tonnage to be able to operate at a particular speed.

5558.10 If the train experiences any loss of dynamic braking resulting in fewer EDDBA than required, the train must be stopped immediately with the automatic brake using emergency.

5558.11 When a train requires an 18 PSI or greater brake pipe reduction to control speed, the train must:

1. Be stopped immediately with the train brakes using emergency if necessary,
2. Have an additional 6 PSI brake pipe reduction made,
3. Have each car inspected to determine that brakes are operating properly,
4. Have all retainers set in:

1. High pressure position before continuing, and
2. Direct Exhaust position when the train reaches the bottom of the grade.

Note: Trains using retainers may need to be stopped on grade to allow wheels to cool depending on length of grade.

5558.12 If a train is stopped on a steep grade using an 18 PSI or greater brake pipe reduction, the train must be secured and air brake system recharged before proceeding.

5558.13 Trains stopped for the purpose or recharging train air brakes must be secured with sufficient hand brakes to hold the train. After the train air brake system is recharged, and retainers are set, if needed make at least a minimum reduction to hold the train while hand brakes are released.

5558.14 When ascending steep grades at speeds below 15 MPH with head-end power only:

1. Gradually reduce throttle to at least position #6 just before the locomotive crest the grade, and
2. Refrain from increasing throttle position until train has crested the grade and the speed increases.

Chapter 11 - Helper Service

5601 - Responsibilities

- 5601.1** Locomotive operators must maintain radio communication with each other at all times while handling the train and from the leading locomotive consist:
1. Operate the train brakes, and
 2. Make certain that all other Locomotive Operators are informed of planned speed changes, signal indications, and any other condition which may affect train movement.
- 5601.2** The helper operator must comply with instructions from the leading locomotive operator.
- 5601.3** Ensure that the helper locomotive is properly positioned and all crew members have a clear understanding of:
1. Loads, empties, tonnage and any restrictions for the train, and
 2. Number of cars and tons that the helper locomotive is cut in ahead of.
- 5601.4** During all shoving operations, the helper crew will ride in the lead locomotive of helper consist facing the direction of travel while the train is being shoved.

5602 - Restrictions

- 5602.1** Helper locomotives must be equipped with alignment control couplers.
- 5602.2** When reverse movement exceeds one mile, the locomotive operator on the helper locomotive coupled to the rear of a train must control the train air brakes.
- 5602.3** Passenger trains carrying passengers must not be assisted by pushing from the rear of the train.
- 5602.4** Helper crews must uncouple from their own train, if coupled to a train prior to coupling to the train being assisted.

5603 - Adding Helper

5603.1 When adding a helper locomotive to a train without helper link, the helper crew must:

1. Make certain the assisted train has stopped,
2. After coupling, stretch slack to ensure coupling has been made,
3. Apply a Full Service brake pipe application and wait for the brake pipe exhaust to stop,
4. Cut out the Automatic Brake, and place the handle in HANDLE OFF,
5. Couple the brake pipe hoses and open the angle cocks,
6. Place the Independent Brake valve handle in the RELEASE position, actuating to fully release the helper locomotive consists brakes, and
7. Notify the lead locomotive operator that the helper is coupled.

5604 - Operating a Helper Equipped Train

5604.1 The Locomotive Operator on the leading end will direct the starting movement of the train.

5604.2 When accelerating the locomotive, throttle should be increased gradually. Do not place the helper locomotive throttle in # 8 until the entire train is clear of turnouts or crossovers.

5604.3 When slowing or stopping the train, the locomotive operator on the helper unit must:

1. Make throttle adjustments that prevents an increase in locomotive output, and
2. Actuate locomotive brake cylinder pressure when the train brakes are applied.

5604.4 During an emergency stop, the locomotive operator on the helper unit must control brake cylinder pressure to 25 PSI to minimize in-train-forces.

5604.5 During train movement, if it is necessary for the helper locomotive operator to initiate an emergency brake application, the automatic brake must be placed in emergency position.

5605 - Detaching Helper

5605.1 Train movement must be stopped to detach the helper locomotive, unless equipped with a "Helper Link" or similar device.

5606 - Helper Link

5606.1 After installing the Helper Link or taking charge of a locomotive equipped with a Helper Link, a visual inspection and test must be made to ensure that all hoses and jumper cables will not interfere with the operation of the lift chain which is connected to the coupler.

5606.2 Helper Link must be inspected and tested as follows:

1. Knuckle on the locomotive end with helper link box must be closed;
2. The trainline power-reduction feature on the helper locomotive must be positioned to full power;
3. Turn on the Engine Run, Generator Field and Control Fuel Pump switches;
4. Reverser must be placed in either Forward or Reverse;
5. Position the Power Reduction switch to “trainline power reduction” (all units);
6. Inspect to verify that the knuckle has been operated by the coupler-lift mechanism, and
7. Turn the trainline power reduction switch to the OFF position.

Note: If the coupler pin did not lift, verify the main reservoir equalizing hose, the end cock and jumper cable connections are connected from the helper locomotive to the helper link and repeat steps 2 through 6.

5607 - Operating a Helper Link

5607.1 Prior to coupling to the rear of a train, the helper crew must verify that the knuckle on the helper locomotive is open on the end to be attached to the train.

5607.2 After coupling to the rear of the train:

1. Stretch slack to ensure the coupling has been made,
2. Apply a full service brake pipe application and wait for the brake pipe exhaust to stop,
3. Cut out the automatic brake, and place the handle in HANDLE OFF, and
4. Make a visual inspection from the walkway of the helper unit ensuring that telemetry device is still in place and none of the hoses will be affected by the coupler once movement begins.

5607.3 To arm, open the helper link box lid and:

1. Verify the thumbwheel switch assembly numbers are the same as the ID code number on the end of train device,
2. Press the comm/check pushbutton to test communications between the helper link and the end of train telemetry device,
3. Press the enable button to start the electronic signal,
4. Note that the “enable” light is illuminated and close the helper link box lid,
5. Return to the cab and note brake pipe pressure reading,
6. Release the independent brake,
7. Notify the Locomotive Operator on the lead locomotive that the helper is ready for a Helper Service brake test, and
8. Verify that brakes apply and release on the helper unit when the Locomotive Operator performs the brake test from the lead locomotive.