Existing Brake Tokens – Train Brakes Release and Lap

OR Brake Token	Air Brakes	Vacuum Brakes - steam	Vacuum Brakes – diesel and electric
*TrainBrakesControllerOverchargeStart**	*Token still being developed*		
TrainBrakesControllerFullQuickReleaseStart	Increases brake pipe pressure at rate determined by TrainBrakesControllerMaxQuickReleaseRate – releases brakes – and maintains brake pipe at working pressure	Increases vacuum and releases brakes (operates large ejector for combination ejectors)	Increases brake pipe vacuum at rate determined by TrainBrakesControllerMaxQuickReleaseRate – releases brakes – and maintains working vacuum
TrainBrakesControllerReleaseStart	Increases brake pipe pressure at rate determined by TrainBrakesControllerMaxReleaseRate – releases brakes – and maintains brake pipe at working pressure		Increases brake pipe vacuum at rate determined by TrainBrakesControllerMaxReleaseRate – releases brakes – and maintains working vacuum
TrainBrakesControllerRunningStart	Maintains any pressure in brake pipe against leakage.	Increases vacuum or maintains working vacuum and releases brakes	Maintains any vacuum in brake pipe against leakage.
TrainBrakesControllerSelfLapStart		Maintains any vacuum in brake pipe against leakage.	
TrainBrakesControllerHoldStart			
TrainBrakesControllerEPHoldStart			
TrainBrakesControllerNeutralHandleOffStart	Maintains pressure in brake pipe but does not compensate for leakage		
TrainBrakesControllerHoldLappedStart		Maintains any vacuum in brake pipe but does not compensate for leakage	Maintains any vacuum in brake pipe but does not compensate for leakage

Existing Brake Tokens – Suppression

OR Brake Token	Air Brakes	Vacuum Brakes - steam	Vacuum Brakes – diesel and electric
TrainBrakesControllerSuppressionStart	*Special Position used to 'suppress' the effects of a penalty brake application.*		

Existing Brake Tokens – Train Brakes Application

OR Brake Token	Air Brakes	Vacuum Brakes - steam	Vacuum Brakes – diesel and electric
TrainBrakesControllerMinimalReductionStart	Maintains brake pipe pressure below working pressure by amount specified in TrainBrakesControllerMinPressureReduction		Maintains any vacuum in brake pipe against leakage.
TrainBrakesControllerGraduatedSelfLapLimitedStart	Reduces brake pipe pressure at rate specified by TrainBrakesControllerMaxApplicationRate until pressure is less than working pressure by amount specified by TrainBrakesControllerFullServicePressure Drop		
TrainBrakesControllerFullServiceStart			
TrainBrakesControllerEPFullServiceStart			
TrainBrakesControllerContinuousServiceStart	Depending on position of handle, maintains brake pipe pressure at any value between TrainBrakesControllerMinPressureReduction below working pressure and TrainBrakesControllerFullServicePressure Drop below working pressure		
TrainBrakesControllerEPContinuousServiceStart			
TrainBrakesControllerVacuumContinuousServiceStart		Depending on position of handle, maintains brake pipe vacuum at any value between working vacuum and zero.	
TrainBrakesControllerVacuumApplyContinuousServiceStart		Reduces vacuum in brake pipe at a rate dependent on the position of the handle.	
TrainBrakesControllerApplyStart	Reduces brake pipe pressure at rate specified by TrainBrakesControllerMaxApplicationRate until pressure is zero	Reduces brake pipe vacuum at rate specified by TrainBrakesControllerMaxApplicationRate until vacuum is zero	Reduces brake pipe vacuum at rate specified by TrainBrakesControllerMaxApplicationRate until vacuum is zero
TrainBrakesControllerEPApplyStart	Gives notched air brake or EP brake		
TrainBrakesControllerEmergencyStart	Reduces brake pipe pressure at rate specified by TrainBrakesControllerEmergencyApplicationRate until pressure is zero	Reduces brake pipe vacuum at rate specified by TrainBrakesControllerEmergencyApplicationRate until vacuum is zero	Reduces brake pipe vacuum at rate specified by TrainBrakesControllerEmergencyApplicationRate until vacuum is zero

Suggested Additional Train Brake Controller Tokens

OR Brake Token	Air Brakes
TrainBrakesControllerSlowServiceStart	Makes Service Application of Air Brake at Slower Rate than TrainBrakesControllerFullServiceStart
TrainBrakesControllerDynamicBrakeFirstServiceStart	Applies Dynamic Brakes only – air brakes are not applied
TrainBrakesControllerEngineBrakeApplyStart	Applies Locomotive Brakes only – train brakes not applied
TrainBrakesControllerEngineBrakeReleaseStart	Releases Locomotive Brakes only – train brakes held (Bail Off)
TrainBrakesControllerBrakeNotchStart	Gives notched air brake (similar to TrainBrakesControllerEPApplyStart but air brake operation only)

MSTS Train Brake Controllers not used in Open Rails

TrainBrakesControllerGraduatedQuickReleaseStart
TrainBrakesControllerGraduatedSelfLapStart

Suggested Additional Train Brake Controller Tokens for Graduated Release of Air Brakes and EP Brakes using Brake Tokens

These tokens would be needed for graduated release of air brakes using tokens

TrainBrakesControllerGraduatedOverchargeStart
TrainBrakesControllerGraduatedQuickReleaseStart
TrainBrakesControllerGraduatedReleaseStart
TrainBrakesControllerGraduatedSelfLapStart
TrainBrakesControllerGraduatedHoldLappedStart

In addition the following tokens would always give graduated release if we use this approach

TrainBrakesControllerContinuousServiceStart
TrainBrakesControllerEPContinuousServiceStart
TrainBrakesControllerBrakeNotchStart

Engine Brake Tokens

It is suggested that only tokens in bold type are used for new OR models.

Other tokens are for compatibility with MSTS legacy models only.

OR Brake Token	Independent Air Brake or Steam Brake
EngineBrakesControllerFullQuickReleaseStart	Releases locomotive brake at rate determined by EngineBrakesControllerMaxQuickReleaseRate
EngineBrakesControllerGraduatedQuickReleaseStart	
EngineBrakesControllerReleaseStart	Releases locomotive brake at rate determined by EngineBrakesControllerMaxReleaseRate
EngineBrakesControllerRunningStart	Maintains steady pressure in locmotive brake cylinder
EngineBrakesControllerHoldLappedStart	
EngineBrakesControllerNeutralHandleOffStart	
EngineBrakesControllerGraduatedSelfLapStart	
EngineBrakesControllerGraduatedSelfLapLimitedStart	
EngineBrakesControllerEPHoldStart	Applies locomotive brake at rate determined by EngineBrakesControllerMaxApplicationRate
EngineBrakesControllerHoldStart	
EngineBrakesControllerSelfLapStart	
EngineBrakesControllerMinimalReductionStart	
EngineBrakesControllerEPApplyStart	
EngineBrakesControllerApplyStart	
EngineBrakesControllerFullServiceStart	
EngineBrakesControllerSuppressionStart	
EngineBrakesControllerBrakeNotchStart	Locomotive brake pressure depends on position of brake handle
EngineBrakesControllerContinuousServiceStart	Locomotive brake pressure depends on position of brake handle
EngineBrakesControllerEmergencyStart	Applies locomotive brake at rate determined by EngineBrakesControllerEmergencyApplicationRate

Westinghouse Air Brakes 5-ET, 6-ET, 8-ET, A-5-ET, A-6-ET, 14-EL

Brake Valve Position	Description of Operation	OR Brake Controller Token
Release	Releases locomotive brake fully even when train brake is applied	*EngineBrakesControllerBailOffStart*
Running	Releases locomotive brake to the same amount as train brake	EngineBrakesControllerRunningStart
Lap	Holds brake cylinder pressure	EngineBrakesControllerHoldLappedStart
Slow Application	Gradually applies locomotive brake	EngineBrakesControllerFullServiceStart
Quick Application	Rapidly applies locomotive brake	EngineBrakesControllerEmergencyStart

Westinghouse Air Brakes 6-B, 26-L

Brake Valve Position	Description of Operation	OR Brake Controller Token
Release / Running*	Releases locomotive brake*	*EngineBrakesControllerBailOffStart*
		EngineBrakesControllerContinuousServiceStart
Full Application	Pressure in brake cylinder depends on position of handle	

Westinghouse Air Brakes 24-RL

Brake Valve Position	Description of Operation	OR Brake Controller Token
Release / Running	Releases locomotive brake	*EngineBrakesControllerBailOffStart*
		EngineBrakesControllerContinuousServiceStart
Full Application	Pressure in brake cylinder depends on position of handle	
Freight Emergency	Full brake application on all locomotives – overides delay in Freight mode	EngineBrakesControllerEmergencyStart

Generic Independent Brake Controllers

Self Lapping Air Brake or Steam Brake

Brake Valve Position	Description of Operation	OR Brake Controller Token
Brake Off	Pressure in brake cylinder depends on position of handle	EngineBrakesControllerContinuousServiceStart
Brake On		

Non-self lapping Air Brake or Steam Brake

Brake Valve Position	Description of Operation	OR Brake Controller Token
Release	Releases locomotive brake	EngineBrakesControllerReleaseStart
Lap	Holds brake cylinder pressure	EngineBrakesControllerRunningStart
Apply	Gradually applies locomotive brake	EngineBrakesControllerFullServiceStart

Notched Air Brake or Steam Brake

Brake Valve Position	Description of Operation	OR Brake Controller Token
Release	Releases locomotive brake	EngineBrakesControllerReleaseStart
Notch 1	Pressure in brake cylinder depends on position of handle	EngineBrakesControllerBrakeNotchStart
Notch 2	Pressure in brake cylinder depends on position of handle	EngineBrakesControllerBrakeNotchStart