

C S X    T R A N S P O R T A T I O N  
AUGUST 14, 2019

HEADQUARTERS      SUB SYSTEM BULLETIN      048

TO:                T&E CREWS AND ALL CONCERNED  
SUBJECT:          POSITIVE TRAIN CONTROL  
EFFECTIVE:        0116HRS, AUGUST 15, 2019

ITEM 1 - IDENTIFIED CHANGES TO BULLETIN

EMPLOYEES ARE ONLY REQUIRED TO CARRY THE MOST CURRENT SYSTEM BULLETINS. THE DISPATCHER BULLETIN WILL PROVIDE THE HIGHEST NUMBERED SYSTEM BULLETIN TO DETERMINE WHICH SYSTEM BULLETINS REMAIN IN EFFECT AND ARE REQUIRED TO BE CARRIED.

ITEM 1A WILL ALWAYS INCLUDE THE MOST RECENT CHANGES TO THIS SECTION OF THE EMPLOYEE OPERATING MANUAL EFFECT 7/1/2019.

ITEM 1B WILL ALWAYS CONTAIN THE CURRENT SYSTEM BULLETINS IN EFFECT. .

A. ITEM 31 - COMMUNICATING THE CURRENT STATE OF PTC

B. CURRENT SYSTEM BULLETINS IN EFFECT

OPERATING RULES: 040  
DISPATCHER RULES: 018  
ROADWAY WORKER RULES: 022  
SAFE WAY: 023  
EQUIPMENT HANDLING: 036  
AIR BRAKE TRAIN HANDLING: 029  
HAZARDOUS MATERIALS (HM-1): 020  
POSITIVE TRAIN CONTROL: 048

## ITEM 2 - INTRODUCTION

### INTRODUCTION

THE POSITIVE TRAIN CONTROL SYSTEM (PTC) IS A SAFETY OVERLAY SYSTEM DESIGNED TO MONITOR AND STOP TRAIN MOVEMENT BEFORE THE TRAIN:

- \* MOVES ONTO A SECTION OF TRACK FOR WHICH THE TRAIN DOES NOT HOLD AN AUTHORITY;
- \* MOVES ONTO A SECTION OF TRACK UNDER THE CONTROL OF MAINTENANCE EMPLOYEE IN CHARGE WITHOUT PERMISSION;
- \* OPERATES OVER AN IMPROPERLY LINED MAIN TRACK SWITCH, OR;
- \* EXCEEDS THE MAXIMUM AUTHORIZED SPEED.

## ITEM 3 - TRAINING/QUALIFICATION

### TRAINING/QUALIFICATION

LOCOMOTIVE OPERATORS WHO HAVE RECEIVED THE PTC CLASSROOM TRAINING AND SUCCESSFULLY COMPLETED THE PTC SIMULATOR RIDE ARE CONSIDERED QUALIFIED TO OPERATE THE PTC EQUIPMENT. CONDUCTORS WHO HAVE COMPLETED CLASSROOM OR POD TRAINING ARE CONSIDERED QUALIFIED.

## ITEM 4 - POSITIVE TRAIN CONTROL IN EFFECT

### POSITIVE TRAIN CONTROL IN EFFECT

POSITIVE TRAIN CONTROL (PTC) IS IN EFFECT FOR ALL PTC EQUIPPED TRAINS.

TRAINS THAT HAVE A PTC EQUIPPED LOCOMOTIVE MUST INITIALIZE AND RUN WITH POSITIVE TRAIN CONTROL ON ALL PTC ACTIVE CONTROLLED TRACKS.

TRAINS MUST INITIALIZE THE PTC SYSTEM PRIOR TO DEPARTING THE ORIGINATING TERMINAL. ANY TRAIN REQUIRED TO OPERATE WITH ACTIVE PTC MUST NOT ENTER LIMITS OF PTC CONTROLLED TRACK UNTIL THE ONBOARD DISPLAYS AN ACTIVE STATE OR AUTHORIZED TO OPERATE CUT OUT.

UNLESS STATED OTHERWISE BY SPECIAL INSTRUCTIONS OR PERMISSION IS RECEIVED FROM THE TRAIN DISPATCHER, THE LOCOMOTIVE OPERATOR MUST VERIFY THE FOLLOWING BEFORE ENTERING OR MAKING AN INITIAL MOVEMENT ON CONTROLLED TRACK DESIGNATED AS PTC TERRITORY:

- A. CONTROLLING LOCOMOTIVE PTC SYSTEM IS OPERATIVE AND HAS BEEN INITIALIZED,
- B. MANDATORY DIRECTIVES CONTAINED IN DISPATCHER MESSAGES AND FORM EC-1 INSTRUCTIONS CORRESPOND TO THE MANDATORY DIRECTIVES LISTED IN THE PTC ON-BOARD SYSTEM. IF A DISCREPANCY IS DISCOVERED, THE TRAIN DISPATCHER MUST BE NOTIFIED.

ONLY LOCOMOTIVES WITH THE PTC CUTOFF SWITCHES (HORN, EMERGENCY BRAKE AND PENALTY BRAKE) THAT ARE SEALED AND CUT IN SHOULD BE USED AS PTC LOCOMOTIVES.

#### ITEM 5 - JOB BRIEFING

##### JOB BRIEFING

CREWS OPERATING PTC EQUIPPED TRAINS ARE REQUIRED TO CONDUCT A JOB BRIEFING REGARDING THE PTC EQUIPMENT.

THE JOB BRIEFING WILL INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING:

- \* LOCOMOTIVE IS A PTC EQUIPPED LOCOMOTIVE;
- \* ALL PTC CIRCUIT BREAKERS ARE IN THE ON POSITION;
- \* PTC SAFETY DEVICES HAVE NOT BEEN CUT OUT.

THE LOCOMOTIVE OPERATOR MUST INITIALIZE THE PTC SYSTEM WHEN ANY OF THE FOLLOWING OCCURS:

- \* THE CREW IS READY TO DEPART THEIR INITIAL TERMINAL;
- \* THE CREW RECEIVES A NEW DISPATCHER BULLETIN;
- \* THE CREW CHANGES;
- \* THE TRAIN ID CHANGES;
- \* LEAD LOCOMOTIVE IS CHANGED;
- \* THE PTC CUT IN FUNCTION IS UTILIZED;
- \* INSTRUCTED BY THE TRAIN DISPATCHER.

#### ITEM 6 - INITIALIZING PTC SYSTEM

WHEN THE PTC SCREEN IS ILLUMINATED, PRESS THE MENU 1 KEY, THEN SELECT "INIT" BUTTON TO BEGIN INITIALIZATION.

TRAINS THAT WILL BE REQUIRED TO OPERATE PTC AND WILL OPERATE OVER PTC ACTIVE TRACK AT ANY POINT DURING THEIR TOUR OF DUTY MUST INITIALIZE PTC AT THE ORIGINATING LOCATION. PTC WILL DISPLAY DISENGAGED WHILE OPERATING ON THE NON PTC SUB. PRIOR TO REACHING THE LIMITS OF THE ACTIVE PTC SUB, THE LOCOMOTIVE OPERATOR MUST SLOW TRAIN SPEED TO 19 MPH OR LESS AND SELECT CURRENT TRACK LOCATION FOR PTC TO GO ACTIVE.

## ITEM 7 - CONSIST INFORMATION

### CONSIST INFORMATION

DURING INITIALIZATION, THE LOCOMOTIVE OPERATOR MUST CONFIRM THAT THE MOST CURRENT INFORMATION REGARDING THE TRAIN'S CONSIST IS DISPLAYED BY THE PTC SYSTEM AND VERIFY THE FOLLOWING:

- \* LEAD LOCOMOTIVE ORIENTATION
- \* TOTAL NUMBER OF LOCOMOTIVES IN THE CONSIST
- \* TOTAL NUMBER OF LOADED AND EMPTY CARS IN THE TRAIN
- \* TRAIN'S TONNAGE AND LENGTH
- \* EQUIPMENT RESTRICTIONS OR EQUIPMENT SPEED RESTRICTIONS
- \* AXLE COUNT
- \* OPERATIVE BRAKE COUNT

## ITEM 8 - DEPARTURE TEST/AUDIBLE ALERT TEST

### DEPARTURE TEST/AUDIBLE ALERT TEST

A DEPARTURE TEST/AUDIBLE ALERT TEST MUST BE PERFORMED.

- \* ANY TIME A 'YELLOW' DEPART FLAG IS DISPLAYED DURING INITIALIZATION.
- \* IF THE AUDIBLE ALERT TEST FAILS, THE LOCOMOTIVE SHOULD NOT BE USED AS A LEAD LOCOMOTIVE.

A MINIMUM OF 80 PSI BRAKE PIPE PRESSURE IS REQUIRED ON THE CONTROLLING LOCOMOTIVE TO INITIATE AND PERFORM A DEPARTURE TEST.

AFTER SUCCESSFUL INITIALIZATION AND BEFORE ENTERING PTC ACTIVE TRACK, THE LOCOMOTIVE OPERATOR MUST PRESS SELECT LOCATION KEY TO SELECT CURRENT TRACK. THE SELECT LOCATION KEY WILL NOT BE VISIBLE AT SPEEDS ABOVE 19 MPH.

## ITEM 9 - RESTRICTIONS AND AUTHORITIES

### RESTRICTIONS AND AUTHORITIES

AFTER SUCCESSFUL INITIALIZATION AND BEFORE DEPARTING, THE CREW MUST COMPARE RESTRICTIONS AND AUTHORITIES VIEWED ON BOARD THE PTC DISPLAY WITH THE PAPER COPY OF THE DISPATCHER BULLETIN ISSUED TO THE TRAIN. ANY DISCREPANCIES MUST BE REPORTED TO THE TRAIN DISPATCHER FOR CORRECTION PRIOR TO DEPARTING.

AUTHORITIES VIEWED ON THE PTC DISPLAY ARE CURRENTLY FOR INFORMATION PURPOSES ONLY AND ARE NOT AN AUTHORITY FOR MOVEMENT. ANY DISCREPANCY BETWEEN INFORMATION ON THE PTC DISPLAY AND WHAT IS ACTUALLY CONVEYED BY EC-1 AUTHORITY, DISPATCHER MESSAGES AND/OR SIGNAL ASPECTS MUST BE REPORTED TO THE TRAIN DISPATCHER.

IF THE PTC SYSTEM ON THE CONTROLLING LOCOMOTIVE FAILS, TRANSITIONS TO THE DISENGAGED STATE, NON-SYNC OR IS CUT OUT AFTER DEPARTING THE INITIAL TERMINAL, IMMEDIATELY NOTIFY THE TRAIN DISPATCHER.

## ITEM 10 - EN ROUTE CONFLICTS

### EN ROUTE CONFLICTS

THE MOST RESTRICTIVE WILL GOVERN IF THERE IS A CONFLICT BETWEEN INFORMATION DISPLAYED BY THE PTC ONBOARD DISPLAY AND:

- A. WAYSIDE OR CAB SIGNAL INDICATION, OR
- B. DISPATCHER MESSAGE OR FORM EC-1 INSTRUCTIONS, OR
- C. AUTHORIZED SPEEDS, OR
- D. SPECIAL INSTRUCTION

CONSIDER THE PTC SYSTEM ON THE CONTROLLING LOCOMOTIVE AS FAILED ANY TIME THE PTC SCREEN DISPLAYS:

- A. FAILED, OR
- B. CUT OUT, OR
- C. YOU RECEIVE A WARNING MESSAGE THAT DISPLAYS THE SYSTEM WILL BE DISABLING ENFORCEMENT FOR THE FOLLOWING REASONS:
  - 1. UNKNOWN LOCOMOTIVE POSITION
  - 2. POSITION UNCERTAINTY
  - 3. UNKNOWN DIRECTION OF TRAVEL
  - 4. SYNCHRONIZATION ERROR

IF A WAYSIDE OR CAB SIGNAL INDICATION CONFLICTS WITH THE INDICATION DISPLAYED ON PTC, NOTIFY THE TRAIN DISPATCHER WITH THE FOLLOWING INFORMATION:

1. TIME OF THE OCCURRENCE,
2. SIGNAL NAME OR MILEPOST,
3. INDICATION DISPLAYED BY THE WAYSIDE SIGNAL,
4. CONFLICTING INDICATION DISPLAYED BY PTC ON-BOARD, AND
5. MILEPOST LOCATION WHEN PTC INITIALLY PROVIDED CONFLICTING INFORMATION.

IF A CONFLICT IS DISCOVERED ENROUTE BETWEEN MANDATORY DIRECTIVES CONTAINED IN DISPATCHER MESSAGES OR ON FORM EC-1 AND THE MANDATORY DIRECTIVES LISTED ON PTC:

1. STOP THE TRAIN USING GOOD TRAIN HANDLING TECHNIQUES UNLESS A CONDITION REQUIRES AN EMERGENCY APPLICATION,
2. NOTIFY THE TRAIN DISPATCHER OF THE EXACT NATURE OF THE CONFLICT, AND
3. DO NOT MAKE FURTHER MOVEMENT UNTIL RELEASED BY THE TRAIN DISPATCHER.

ITEM 11 - EN ROUTE FAILURE AND OPERATING WITH PTC CUT OUT

ENROUTE FAILURE AND OPERATING WITH PTC CUT OUT

THE PTC SYSTEM CAN ONLY BE CUT OUT WHEN PERMISSION IS RECEIVED FROM THE TRAIN DISPATCHER.

WHEN PERMISSION FROM THE TRAIN DISPATCHER IS RECEIVED TO PHYSICALLY CUT OUT PTC, THE LOCOMOTIVE OPERATOR MUST:

1. BREAK SEAL ON PTC CUT OUT SWITCH BOX.
2. BREAK SEALS ON PTC CUT OUT SWITCHES
3. RECORD THE FOLLOWING ON THE PTC TRIP REPORT
  1. NAME AND TITLE OF AUTHORIZING PERSON
  2. REASON, AND
  3. DATE, TIME AND MILEPOST LOCATION

WHEN PERMITTED BY THE TRAIN DISPATCHER, PTC MAY ALSO BE CUT OUT FOR, BUT NOT LIMITED TO, THE FOLLOWING CONDITIONS:

- \* PTC TRANSITIONS TO THE FAILED STATE, OR;
- \* PTC PROHIBITS TRAIN MOVEMENT THAT SHOULD BE ALLOWED.

A LOCOMOTIVE WITH A FAILED OR CUT OUT PTC SYSTEM MUST HAVE THE SYSTEM REPAIRED OR REPLACED AT THE NEXT DESIGNATED PTC REPAIR LOCATION.

#### ITEM 12 - RESPONDING TO PTC PROMPTS

##### RESPONDING TO PTC PROMPTS

INPUTS AND RESPONSES TO PROMPTS MUST BE ACCURATE AND TIMELY TO PREVENT AN UNNECESSARY PTC ENFORCEMENT AND DELAY. THE LOCOMOTIVE OPERATOR MUST OPERATE THE TRAIN IN RESPONSE TO A PTC WARNING TO PREVENT A PENALTY BRAKE APPLICATION, CONSISTENT WITH GOOD TRAIN HANDLING. IF AN IMPROPER INPUT OR RESPONSE TO A PROMPT IS MADE, IT MUST NOT BE ACTED UPON UNTIL CORRECTED OR RESOLVED.

#### ITEM 13 - PENALTY BRAKING

##### PENALTY BRAKING

WHEN THE TRAIN IS STOPPED BY A PTC ENFORCEMENT, THE LOCOMOTIVE OPERATOR MUST NOTIFY THE TRAIN DISPATCHER AND NOT MAKE FURTHER MOVEMENT UNTIL PERMISSION IS RECEIVED. PROVIDE THE FOLLOWING INFORMATION TO THE TRAIN DISPATCHER:

1. LEAD LOCOMOTIVE INITIALS AND NUMBER,
2. TIME AND MILEPOST LOCATION WHEN THE PENALTY BRAKE APPLICATION WAS INITIATED,
3. REASON FOR PENALTY BRAKE APPLICATION, AND
4. MILEPOST LOCATION OF THE HEAD AND REAR OF THE TRAIN WHEN STOPPED.

## ITEM 14 - PICKING UP OR SETTING OFF EQUIPMENT

### PICKING UP OR SETTING OFF EQUIPMENT

WHEN REQUIRED TO PERFORM PICKUPS, SETOFFS, OR OTHER SWITCHING ACTIVITIES INCLUDING SHOVE MOVEMENTS, TRAINS REQUIRED TO INITIALIZE AND OPERATE WITH ACTIVE PTC MUST:

1. STOP THE TRAIN/LOCOMOTIVE;
2. UTILIZE RESTRICTED MODE

THE LOCOMOTIVE OPERATOR WILL SELECT THE "RESTRICTED MODE ON" SOFT KEY. WHEN THE "RESTRICTED MODE ON" KEY IS SELECTED, THE ONBOARD WILL PROMPT "THIS WILL ONLY ALLOW TRAIN MOVEMENT AT RESTRICTED SPEED, DO YOU WANT TO CONTINUE"?

ONCE THE LOCOMOTIVE OPERATOR SELECTS THE "YES" SOFT KEY, PTC WILL TRANSITION TO RESTRICTED STATE AND WILL DISPLAY RESTRICTED AS THE STATE. MAX SPEED WILL ALSO BE DISPLAYED AS "MAX SPEED RST SPD".

ALL MOVEMENTS WILL BE HELD TO RESTRICTED SPEED ANYTIME THIS MODE IS UTILIZED.

ONCE ALL SWITCHING IS COMPLETE AND THE LOCOMOTIVE IS STOPPED, THE "RESTRICTED MODE OFF" KEY WILL THEN BE DISPLAYED.

WHEN THE "RESTRICTED MODE" KEY IS SELECTED, THE ONBOARD WILL PROMPT, "DO YOU WANT TO TURN OFF RESTRICTED MODE".

WHEN THE YES SOFT KEY IS SELECTED, THE ONBOARD WILL DISPLAY, "RESTRICTED MODE WILL NOT BE TURNED OFF UNTIL CONSIST DATA HAS BEEN MODIFIED OR ACCEPTED".

THE STATE WILL NOT TRANSITION TO DISENGAGE UNTIL THE LOCOMOTIVE OPERATOR MODIFIES AND ACCEPTS THE CONSIST OR JUST ACCEPTS THE CONSIST. ONCE THIS IS DONE, THE SYSTEM STATE WILL TRANSITION TO DISENGAGED.

AFTER COMPLETING THE SETTING OFF OR PICKING UP OF CARS OR LOCOMOTIVES ON THE LINE OF ROAD, VERIFY AND UPDATE THE FOLLOWING INFORMATION IN THE PTC SYSTEM PRIOR TO DEPARTING LOCATION.

- \* TOTAL NUMBER OF LOADED AND EMPTY CARS IN THE TRAIN
- \* TRAIN'S TONNAGE AND LENGTH
- \* EQUIPMENT RESTRICTIONS OR EQUIPMENT SPEED RESTRICTIONS
- \* AXLE COUNT
- \* OPERATIVE BRAKE COUNT



IMMEDIATELY AFTER COMPLETING ALL SWITCHING MOVES AND UPDATING ALL REQUIRED CONSIST CHANGES, THE LOCOMOTIVE OPERATOR MUST TURN OFF RESTRICTED MODE PRIOR TO MAKING INITIAL MOVEMENT TO DEPART LOCATION.

FOR THE PURPOSE OF VERIFYING AND UPDATING CONSIST ON PTC TRAINS, AN OPERATIVE BRAKE COUNT HAS BEEN ADDED TO ALL TRAIN WORK ORDERS. THE BRAKE COUNT WILL APPEAR UNDER THE "OP BRK" COLUMN FOR ALL CARS AT ORIGIN AND SCHEDULED LINE OF ROAD PICKUPS.

WHEN VERIFYING OR UPDATING THE PTC CONSIST, WHEN THE OPERATIVE BRAKE COUNT IS LESS THAN THE NUMBER OF CARS IN THE CONSIST, UTILIZE THE BRAKE COUNT ON THE WORK ORDER TO DETERMINE THE CORRECT NUMBER OF BRAKE(S) PER CAR. IF THE CAR IS NOT LISTED ON THE WORK, UTILIZE "1" AS THE OPERATIVE BRAKE COUNT FOR THAT CAR.

#### ITEM 15 - HORN PROTECTION FEATURE

##### HORN PROTECTION FEATURE

LOCOMOTIVE OPERATORS MUST NOT RELY ON THE PTC HORN PROTECTION FEATURE TO SOUND THE HORN WHEN APPROACHING ANY CROSSING AT GRADE. SHOULD THE SYSTEM BEGIN TO SOUND THE HORN, LOCOMOTIVE OPERATORS MUST IMMEDIATELY BEGIN TO MANUALLY SOUND THE HORN TO OVERRIDE.

#### ITEM 16 - LOGGING OFF

LOCOMOTIVE OPERATORS MUST LOG OFF THE PTC SYSTEM BEFORE DEPARTING THE LOCOMOTIVE CAB AT THE END OF THE TOUR OF DUTY.

#### ITEM 17 - MAKING NECESSARY REPORTS TO THE TRAIN DISPATCHER

##### MAKING NECESSARY REPORTS TO THE TRAIN DISPATCHER

THE LOCOMOTIVE OPERATOR MUST REPORT THE FOLLOWING CONDITIONS AND OCCURRENCES TO THE TRAIN DISPATCHER:

- \* PTC DID NOT PROVIDE A WARNING WHEN IT SHOULD HAVE

ITEM 18 - SPEED DISPLAYED AS \*\*\*

SPEED DISPLAYED AS \*\*\*

ALL TRAINS OPERATING AT SPEEDS ABOVE 0 MPH WITH PTC IN THE ACTIVE STATE THAT ENCOUNTER THE CURRENT SPEED DISPLAYED AS 3 ASTERISKS MUST CONTACT THE TRAIN DISPATCHER OR THE PTC SUPPORT DESK.

IF THIS CONDITION OCCURS, TRAIN MOVEMENT DOES NOT NEED TO BE STOPPED.

PTC WILL NOT PROVIDE ENFORCEMENT PROTECTION UNTIL THE SPEED IS AGAIN SHOWN IN NUMERIC FORM ON THE PTC DISPLAY.

ITEM 19 - PERMISSION THROUGH WORK ZONE PRIOR TO MOVING

PERMISSION THROUGH WORK ZONE PRIOR TO MOVING

IF REQUIRED TO STOP EITHER WITHIN OR AT THE BEGINNING OF AN ACTIVE WORK ZONE, PTC WILL PROMPT THE CREW FOR PERMISSION TO CONTINUE THROUGH THE WORK ZONE.

THE LOCOMOTIVE OPERATOR MUST ANSWER AND CONFIRM THE PERMISSION PROMPT PRIOR TO MOVING THE TRAIN OR PTC WILL ENFORCE

## ITEM 20 - INDICATION OF INITIAL DIRECTION

### INDICATION OF INITIAL DIRECTION

THIS WILL ALLOW THE LOCOMOTIVE OPERATOR TO INDICATE THE TRAIN'S INTENDED DIRECTION OF TRAVEL, ALLOWING PTC TO GO ACTIVE PRIOR TO INITIAL MOVEMENT.

THIS WILL ALSO ALLOW THE ONBOARD TO CALCULATE THE TRAIN'S ROUTE AND OBTAIN TARGETS, WHICH WILL REDUCE OR ELIMINATE ENFORCEMENTS FOR GOING ACTIVE RIGHT IN FRONT OF TARGETS AND NOT HAVING TIME TO PROMPT THE LOCOMOTIVE OPERATOR.

DURING INITIALIZATION AND AFTER PTC PROMPTS THE LOCOMOTIVE OPERATOR TO SELECT TRACK LOCATION, THE ONBOARD WILL THEN PROMPT THE LOCOMOTIVE OPERATOR "WHAT TIMETABLE DIRECTION WOULD YOUR TRAIN TRAVEL WITH THE REVERSER IN THE FORWARD POSITION"?

THE LOCOMOTIVE OPERATOR WOULD THEN SELECT THE CORRECT DIRECTION.

IF THE TRAIN MOVES PRIOR TO ANSWERING THE PROMPT, THE PROMPT WILL BE REMOVED AND THE ONBOARD WILL GO ACTIVE BASED ON MOVING 30 TO 50 FEET AS IT DOES TODAY.

IF THE TRAIN STOPS PRIOR TO THE ONBOARD GOING ACTIVE, THE LOCOMOTIVE OPERATOR CAN SELECT THE MENU 1 SOFT KEY, THEN "SELECT LOCATION/DIRECTION" SOFT KEY, THEN SELECT "SELECT DIRECTION" SOFT KEY WHICH THE ONBOARD WILL PROMPT "WHAT TIMETABLE DIRECTION WOULD YOUR TRAIN TRAVEL WITH THE REVERSER IN THE FORWARD POSITION?"

## ITEM 21 - UNEXPECTED STATE CHANGE

### UNEXPECTED STATE CHANGE

WHEN THE SYSTEM TRANSITIONS FROM ACTIVE TO DISENGAGED, CUTOUT OR FAILED, PTC WILL PROMPT "PRESS KEY TO ACKNOWLEDGE DEGRADED SYSTEM STATE", ALONG WITH AN "ACKNOWLEDGE" SOFT KEY.

WHEN THE "ACKNOWLEDGE" SOFT KEY IS SELECTED, THE ONBOARD WILL TRANSITION TO DISENGAGED, CUTOUT OR FAILED. THE SYSTEM WILL ALLOW 120 SECONDS FOR THE CREW TO SELECT THE "ACKNOWLEDGE" SOFT KEY.

IF "ACKNOWLEDGE" SOFT KEY IS NOT SELECTED, PTC WILL APPLY A PENALTY APPLICATION.

ONCE THE TRAIN COMES TO A STANDSTILL, THE LOCOMOTIVE OPERATOR WILL NEED TO SELECT THE "ACKNOWLEDGE" SOFT KEY.

ITEM 22 - IDENTIFYING THE SWITCH ASSOCIATED WITH A SWITCH POSITION PROMPT

IDENTIFYING THE SWITCH ASSOCIATED WITH A SWITCH POSITION PROMPT

WHEN PTC IS DISPLAYING ONE OF THE FOLLOWING PROMPTS, THE ONBOARD WILL FLASH ON AND OFF THE SWITCH THAT IS BEING PROMPTED:

INDICATE ALIGNMENT OF SWITCH

VERIFY POSITION OF SWITCH IS CORRECT

SWITCH POSITION IS UNKNOWN, INDICATE ALIGNMENT OF SWITCH

SWITCH POSITION IS UNKNOWN, VERIFY POSITION OF SWITCH IS CORRECT

THIS CHANGE IS TO HELP THE LOCOMOTIVE OPERATOR IDENTIFY THE EXACT SWITCH PTC IS PROMPTING WHEN THERE ARE MULTIPLE SWITCHES IN CLOSE PROXIMITY OF EACH OTHER

ITEM 23 - PTC DISPLAY

PTC WILL DISPLAY TRACK LINE COLORS FOR SIGNALS AS FOLLOWS:

SLOW APPROACH OR BETTER SIGNAL	- TRACK LINE GREEN
RESTRICTING OR RESTRICTED PROCEED	- TRACK LINE YELLOW WITH HASHING
STOP	- TRACK LINE RED WITH HASHING
TEMPORARY SPEED RESTRICTIONS	- TRACK LINE YELLOW

ITEM 24 - PTC OUTAGES

THE DATES AND TIMES OF PTC SCHEDULED SYSTEM OUTAGES ARE LISTED AT THE TOP OF DISPATCHER BULLETINS. DURING THE LISTED OUTAGES:

1. DO NOT ATTEMPT TO INITIALIZE DURING A LISTED OUTAGE DATE/TIME.
2. WHEN THE SCHEDULED OUTAGE OCCURS, TRAINS OPERATING WITH ACTIVE PTC WILL RECEIVE A PROMPT "SYNCHRONIZATION ERROR". THE LOCOMOTIVE OPERATOR MUST ACKNOWLEDGE THAT ENFORCEMENTS WILL BE DISABLED. THE SYSTEM WILL TRANSITION TO DISENGAGED.
3. AFTER THE EXPIRATION OF THE SCHEDULED OUTAGE, TRAIN THAT REQUIRE PTC INITIALIZATION MAY INITIALIZE. TRAINS OPERATING DURING THE SCHEDULED OUTAGE THAT TRANSITIONED TO DISENGAGED WILL TRANSITION BACK TO ACTIVE.

ITEM 25 - PTC SOFTWARE UPGRADE STEPS

- A. IN AN EFFORT TO CONTINUOUSLY IMPROVE PTC'S RELIABILITY AND PERFORMANCE, IT IS OCCASIONALLY NECESSARY TO UPDATE THE SOFTWARE CARRIED BY THE LOCOMOTIVE'S ONBOARD COMPUTER (TMC). THESE UPGRADE'S WILL NEED TO BE INSTALLED PRIOR TO INITIALIZING PTC.

IN THE EVENT THAT THE PTC SYSTEM PROMPTS TO INSTALL SOFTWARE WHEN TRYING TO INITIALIZE, HERE ARE THE STEPS REQUIRED TO TAKE PLACE PRIOR TO INITIALIZING.

- A. PTC WILL DISPLAY "NEW SOFTWARE AVAILABLE"
- B. PTC WILL DISPLAY "INSTALL NEW SOFTWARE NOW? BRAKE APPLICATION WILL OCCUR."
- C. ENSURE THAT THE ENGINE REVERSER IS SET TO NUETRAL, THROTTLE TO IDLE, AND AUTOMATIC BRAKE TO RELEASED.
- D. PRESS THE YES KEY. THIS WILL PUT THE TRAIN IN SUPPRESSION AS NOTED.
- E. AFTER INSTALLATION IS COMPLETE THE PTC WILL THEN REBOOT AND DISPLAY THE FOLLOWING SCREENS. NO CREW INTERACTION IS REQUIRED DURING THIS TIME AND WILL TAKE APPROXIMATELY 4 - 6 MINS:
- A. I-ETMS
  - B. NO COMMUNICATION WITH THE TMC
  - C. SELF TEST
  - D. CUTOUT
- F. PTC SHOULD THEN BE READY TO INITIALIZE.

B.

IF THE PTC SYSTEM DISPLAYS ANYTHING OTHER THAN THE CUTOUT SCREEN AFTER SELF TEST, PLEASE CONTACT THE PTC SUPPORT DESK AT 1-800-499-2557.

ITEM 26 - OPERATING PTC WITH FOREIGN LOCOMOTIVES

NORFOLK SOUTHERN (NS)

ANY TRAIN REQUIRED TO OPERATE PTC AND HAS A NORFOLK SOUTHERN LOCOMOTIVE IN THE LEAD, MUST INITIALIZE PTC. NORFOLK SOUTHERN DOES NOT REQUIRE PTC CUT OUT SWITCHES TO BE SEALED. IF DURING INSPECTION, THE LOCOMOTIVE OPERATOR DISCOVERS THE CUT OUT SWITCHES ARE NOT SEALED

AND CUT IN, THE LOCOMOTIVE OPERATOR MUST CUT IN THE SWITCHES.

CANADIAN NATIONAL (CN)

ANY TRAIN REQUIRED TO OPERATE PTC AND HAS A CANADIAN NATIONAL (CN) LOCOMOTIVE IN THE LEAD, MUST INITIALIZE PTC.

ONLY LOCOMOTIVES WITH THE PTC CUTOFF SWITCHES (HORN, EMERGENCY BRAKE AND PENALTY BRAKE) THAT ARE SEALED AND CUT IN SHOULD BE USED AS PTC LOCOMOTIVES.

ITEM 27 - REVERSE MOVEMENTS OUTSIDE THE LIMITS OF A BLOCK WHILE OPERATING PTC

WHILE OPERATING WITH PTC AND THERE IS A NEED TO MAKE A REVERSE MOVEMENT OUTSIDE THE LIMITS OF THE BLOCK, PTC WILL REQUIRE THE FOLLOWING:

AFTER THE TRAIN ENTERS A BLOCK AND CHANGES THE DIRECTION OF TRAVEL, PTC WILL REQUIRE THE TRAIN TO BE OPERATED AT RESTRICTED SPEED UNTIL THE NEXT SIGNAL.

PTC WILL DISPLAY A ZERO TARGET "RED FENCE" AT THE NEXT FACING SIGNAL REGARDLESS OF WHAT SIGNAL IS BEING DISPLAYED.

ONCE THE TRAIN IS WITHIN 2000 FEET OF THE SIGNAL, THE ONBOARD WILL PROMPT "PRESS KEY WHEN YOU HAVE PERMISSION TO MAKE A REVERSE MOVEMENT OUTSIDE THE LIMITS OF THE BLOCK".

ONCE PERMISSION IS RECEIVED FROM THE DISPATCHER, THE LOCOMOTIVE OPERATOR MUST SELECT THE "RECEIVED" SOFT KEY, FOLLOWED BY THE "CONFIRM" SOFT KEY.

IF THE RECEIVED AND CONFIRM KEYS ARE NOT SELECTED, PTC WILL WARN AND POSSIBLY ENFORCE BASED ON NOT ANSWERING THE REQUIRED PROMPTS.

ITEM 28 - PTC CUT OUT LOCATIONS INDICATED BY DISPATCHER MESSAGE

WHEN NOTIFIED BY DISPATCHER MESSAGE THAT PTC MUST BE CUT OUT WHILE OPERATING BETWEEN SPECIFIC LIMITS, THE LOCOMOTIVE OPERATOR MUST STOP THE TRAIN PRIOR TO REACHING THE LIMITS AND CUT OUT PTC USING THE SOFT KEY CUT OUT BUTTON.

PTC MUST BE CUT IN PROMPTLY AFTER THE ENTIRE TRAIN HAS CLEARED THE SPECIFIC LIMITS. THE LOCOMOTIVE OPERATOR MUST CUT PTC IN BY SLOWING THE TRAIN SPEED TO 19 MPH OR LESS, SELECTING THE SOFT KEY CUT IN BUTTON AND SELECTING CURRENT TRACK LOCATION FOR PTC TO GO ACTIVE.

## ITEM 29 - TARGET APPROACH MANAGEMENT

TARGET APPROACH MANAGEMENT (TAM) IS A NEW FUNCTIONALITY THAT WILL AFFECT FREIGHT AND INTERMODAL TRAINS ONLY. TARGET APPROACH MANAGEMENT WILL GIVE TRAINS THE ABILITY AT SLOW SPEED TO GET CLOSER TO A TARGET. WHEN THE LEADING EDGE OF THE TRAIN GETS WITHIN 1000 FEET OF A ZERO MPH TARGET (STOP TARGET) AND IS OPERATING AT A SPEED OF LESS THAN 10 MPH, TARGET APPROACH MANAGEMENT WILL BECOME ENGAGED. UNDER TARGET APPROACH MANAGEMENT, PTC WILL NOT UTILIZE THE FULL SERVICE BRAKING CURVE, BUT INSTEAD UTILIZE THE EMERGENCY BRAKING CURVE. LOCOMOTIVE OPERATORS WILL RECEIVE AN ORANGE "EMERGENCY BRAKING IN XX FEET" BANNER THAT TELLS THEM HOW FAR THEY HAVE UNTIL THE SYSTEM TRIGGERS AN EMERGENCY APPLICATION FOR THE UPCOMING TARGET. IF THE TRAIN IS OPERATING AT SPEEDS ABOVE 10 MPH AND IS MORE THAN 1000 FEET FROM THE STOP TARGET, PTC WILL DISPLAY THE CURRENT YELLOW "WARNING: BRAKING IN XX SEC" BANNER.

## ITEM 30 - ENTER MAIN TRACK PROMPT

AT LOCATIONS WHERE A TRAIN ACCESSES THE MAIN LINE AT AN ELECTRIC LOCK SWITCH, PTC WILL PROMPT THE TRAIN FOR PERMISSION TO ENTER MAIN TRACK. IN ORDER TO RECEIVE THE PROMPT TO ENTER MAIN TRACK, THE TRAIN MUST BE WITHIN 1500 FEET OF THE ELECTRIC LOCK SWITCH AND STOPPED. ONCE STOPPED AND THE PROMPT APPEARS, THE LOCOMOTIVE OPERATOR WILL RECEIVE PERMISSION FROM THE TRAIN DISPATCHER AND ANSWER THE PROMPT TO ENTER THE MAIN TRACK. THE LOCOMOTIVE OPERATOR WILL THEN HAVE TO VERIFY THE POSITION OF THE SWITCH ONCE THE TRAIN GETS WITHIN 500 FEET OF THE SWITCH.

## ITEM 31 - COMMUNICATING THE CURRENT STATE OF PTC

ALL CREW MEMBERS MUST COMMUNICATE TO ONE ANOTHER THE CURRENT STATE OF PTC, ANYTIME THE SYSTEM TRANSITIONS TO ANYTHING OTHER THAN ACTIVE.

ISSUED BY OPERATING RULES DEPARTMENT