

**CATTRON REMOTE CONTROL LOCOMOTIVE SYSTEM**

**RCLS Operation -CATTRON**  
**Special Instructions for the use of**  
**CATTRON Remote Control Locomotive**  
**System (RCLS)**

**In the application of CROR General Rule A(ii), employees connected with the operation of CATTRON RCLS equipment must have a copy of this document accessible while on duty.**

When indicated by Operating Bulletin, this document may be modified to include area specific instructions.

**1.0 General**

- 1.1 All CROR, UM, GOI and Timetable Special Instructions remain in effect, except as modified herein.
- 1.2 In the application of CROR General Rule L, the Remote Control Operator (RCO) / employee performing the duties of a:
  - locomotive engineer, the duties will be performed by the YSE (Yard Service Employee)
  - conductor, the duties will be performed by the YSH (Yard Service Helper)

**Note: UYE (Utility Yard Employee) will perform the duties of either the YSE or the YSH when relieving these positions.**

- 1.3 It is prohibited to attempt a “running switch” (drop) using RCLS equipment.
- 1.4 YSE and YSH must pay careful attention to the approximate number of cars being handled in relation to loads and empties in order to ensure proper train handling practices can be followed.

**1.5 Strobe Lights:**

Some RCLS Locomotives are equipped with strobe lights. If so, the following instructions are to be complied with. (This item does not apply to locomotives that are not equipped with the strobes.)

When operating in Remote mode, there is a strobe light located on the roof of the locomotive which will flash to indicate remote operation. This light is for operator reference only and does not affect the operation of RCLS equipment. The following instructions govern when strobe light(s) become defective:

- strobe light(s) must be operative when taking charge of RCLS equipment at a Locomotive Safety Inspection Location.
- at least one strobe light must be operative when taking charge of RCLS equipment at other than a Locomotive Safety Inspection Location.
- If a strobe light fails, report to your immediate supervisor or locomotive facility so repairs can be arranged. It is permissible to continue working with one strobe light with no restrictions.
- If all strobe lights fail, it is permissible to continue working providing that a crew member is positioned on the leading end of the working consist whenever that consist is in motion.

- 1.6 Except when required to stop before coupling, all movements must be slowed to approximately 1 mph with speed selector in COUPLE position when between 6 and 12 feet from equipment to be coupled to, and moved to STOP just prior to coupling.

**1.7 In the application of GOI Section 7, item 15.1, when coupling cars:**

- Do not attempt to couple a car or locomotive to another piece of equipment, unless the couplers are in line with each other.
- When it becomes necessary to adjust a mismatched coupler, the following procedure must be used:

	Action
<b>a</b>	Stop the movement
<b>b</b>	Allow a safe distance, not less than 50 feet, for working room between equipment (whenever necessary, the controlling OCU operator should reverse the movement and stop a second time to obtain a safe amount of room).
<b>c</b>	Once a request 3-point is received or 3-point is required: <b>Step 1:</b> Ensure the speed selector is in "STOP" <b>Step 2:</b> Ensure the reverser is in "NEUTRAL" <b>Step 3:</b> Place the Automatic train brake in "LIGHT" or greater (if required) <b>Step 4:</b> Communicate to your crew member that 3-point protection has been applied.

**1.8 Removal of OCU for Specific Tasks**

**NOTE:** These instructions apply only when protection from your own movement is required

**Before Removing OCU**

Step	Action
<b>1</b>	Locomotive must be stopped
<b>2</b>	Confirm intent to remove OCU with other crew members
<b>3</b>	Control must be transferred to operator removing the OCU
<b>4</b>	Apply 3-point protection as per Item 1.7(c).

**Note: After removing OCU, it must be placed in close proximity (to prevent tampering).**

**Before Movement Commences.**

Step	Action
<b>1</b>	OCU must be re-attached to harness and audible tilt test performed
<b>2</b>	Other crew members must be informed of intent to release train brake
<b>3</b>	If Automatic brake was applied, toggle train brake selector to RELEASE and hit the OCU Status button twice and the display will indicate the brake pipe pressure, also the Train Brake Release LED will change between Amber and Green indicating the train brake is released.

**Note: If both operators need to remove the OCU from their harnesses, a job briefing must be performed with the controlling OCU operator; the non-controlling operator need not take any special steps other than to confirm that 3-point protection has been applied.**

**1.9** When coupling together two portions of a movement, unless the locomotive brakes are sufficient to prevent movement, the train brake selector must be toggled to FULL position and sufficient hand brakes applied to prevent movement before opening the angle cock.

**1.10** Verbal communication between crew members relating to the nature of RCLS operation and a thorough understanding of all movements and intentions must be maintained at all times.

**1.11** Immediately after commanding direction and speed, the controlling employee must visually verify that the movement is responding in the requested direction.

**1.12** RCO employees are responsible to ensure that they are familiar with current information regarding the remote control systems and locomotives.

**1.13** Whenever there is doubt that locomotive brakes can control and stop the movement,

then sufficient air brakes must be cut-in and tested to ensure adequate braking ability exists.

**The following status messages will indicate an insufficient state of charge and will not allow the movement to proceed:**

- “Low brake pipe pressure”
- “Low main reservoir pressure”

**Whenever state of charge is in doubt, stop the movement and recharge equipment.**

**1.14** Brakes must be kept free of ice and snow in winter conditions by doing the following:

- condition brake shoes periodically on locomotives by requesting a slower speed;

OR

- on cars charged with air, toggle the train brake selector to MIN position (at speeds of 4 mph or less).

**Note:** CATTRON equipped RCLS locomotives are **NOT** equipped with a “Snow Shoe Brake”. Additional brake shoe conditioning for the locomotives and cars may be required in severe conditions.

## 2.0 Taking Charge of RCLS Equipment at Any Location

These instructions apply when taking charge of an RCLS consist left in Remote Mode or when initially setting up from manual to Remote. These instructions do not include direct transfer between crews or employees.

**Note:** All trailing locomotives must have air brakes set up for trail position.

### 2.1 Initial Checks.

Step	Action
1	Apply hand brake
2	Check that flagging kit is fully supplied on RCLS locomotive.

### 2.2 Start Engine Manually (if required)

#### Smart-Start

Step	Action
1	Ensure hand brake(s) are applied.
2	Ensure <b>Smart-Start</b> is activated throughout consist (as indicated by green light on electrical panel in each locomotive. <b>Note:</b> A dead locomotive with a red Smart-Start light must be started manually.
3	In locomotive set up as lead (air brakes are cut IN), move independent brake handle to the RELEASE position.
4	If locomotive RSC system activates (lights flash and tone sounds), depress yellow reset button on control stand.
5	After engine starts, move independent brake handle to fully applied position.

### 2.3 Perform Locomotive Inspection.

Step	Action
1	Drain moisture from main reservoirs
2	Check fuel tank for fuel level and report if low
3	Check for two blue bull’s eyes on the RCLS air dryer and report to supervisor if other than blue
4	Check that MU hoses, cocks, and 27 pin electrical cable are in place and properly connected (if operating multiple unit consist)
5	Inspect running gear, brake system, pilots, knuckles and pins, for any visible damage
6	Inspect for any other apparent hazards likely to cause an accident; report any exceptions, and advise local supervisor.

**2.4 Set Up Control Stand For CCB 26 Equipped Locomotives (if necessary)**

Step	Action
1	Set front and back headlight to OFF
2	Ensure throttle is in IDLE, reverser is centred with handle removed
3	Ensure GF switch is OFF, engine run and control/fuel pump switches are ON. <b>Note:</b> All 3 switches must be OFF in trailing locomotives unless otherwise provided
4	Cut out the Automatic Brake and Independent Brake by turning Three position cut out switch to TRL
5	Move Automatic Brake handle to HANDLE OFF position
6	Ensure independent brake handle is FULLY APPLIED

**2.5 Set Up Electrical Control Panel (if necessary)**

Step	Action
1	Ensure Alarm Silence Switch is ON (if equipped)
2	Ensure front and rear number light switches are ON (RCLS unit only)
3	Set headlight control as per label
4	Report traction motors if cut-out; (no restrictions apply).
5	Ensure start/stop/isolate switch is in ISOLATE

**2.6 Set up Electrical Cabinet (if necessary)**

Step	Action
1	Ensure battery knife switch is fully CLOSED
2	Ensure all circuit breakers in the black area are ON
3	Ensure headlight circuit breaker is ON
4	Ensure REMOTE circuit breaker is ON

**2.7 Set up RCLS Changeover (if necessary)**

Step	Action
1	Transfer the air by removing the locking pin of the transfer valve handle, move handle to REMOTE position and replace locking pin.
2	Push the Manual/Remote button on the LCU Interface Module (Indication will change from MANUAL to REMOTE. Allow time for system to start-up)
3	Place isolation switch in RUN position.
4	Observe that strobe lights are working.

**2.8 This item number is reserved for future RCLS instructions**

**2.9 This item number is reserved for future RCLS instructions**

## 2.10 Programming OCUs

Step	Action
1	Ensure the OCU is turned OFF
2	Push the "NO" function button on the front panel of the LCU Interface Module for a minimum of 5 seconds. Follow the instructions on the LCU display screen.
3	Line up the infrared eye on the LCU Interface Module with the infrared eye on the OCU
4	Press and Hold the RSC button and turn "ON" the OCU. Listen to the chirping sound and follow the instructions on the LCU/OCU displays.
5	When requested select YES for linking SEC OCU option.
6	Press and Hold the RSC button and turn "ON" the OCU. Listen to the chirping sound and follow the instructions on the LCU/OCU displays.
7	Recover Emergency from OCU's as per item 5.2 (SEC OCU recovered first)
8	Release Train Brake from OCU's

## 2.11 Perform the following Required Tests:

1. Status test (both OCUs)
2. RSC test (both OCUs)
3. Tilt test (both OCUs)
4. Miscellaneous tests (both OCUs)
5. Locomotive/OCU brake test (controlling OCU)

## 3.0 RCLS Tests

**Note:** Prior to performing any of the following tests ensure that the equipment is properly secured to prevent movement.

### 3.1 Status Test (to ensure proper communication between OCU and locomotive)

Step	Action
1	The Primary OCU display will indicate the letter "Pri" on the Right side of the display and the Secondary OCU will show the letter "Sec" on the Right side of the display.
2	Toggle OCU Status Button. Verify locomotive number displayed is correct.
3	If the communication fails the OCU display will indicate "Poll Offline"

### 3.2 RSC Test (to ensure Reset Safety Control feature is functioning)

Step	Action
1	Ensure the Hand Brake is fully applied
2	Ensure the Isolation Switch is in "ISOLATE" position
3	Set Speed selector to STOP
4	Set Direction to FWD or REV
5	Press the RESET button
6	Within 10 seconds, set Speed selector to COAST
7	Wait 50 seconds. The RSC alarm will sound for 10 seconds followed by a FULL SERVICE Brake application
8	Verify on the Brake Pipe Gauge that brake pipe pressure is 64 psi
9	Recover FULL SERVICE from the OCU as per item 5.3
10	Ensure the Independent "FULL" LED is Green and Train Brake "Release" LED is Amber/Green.

**3.3 Tilt Test – Must be performed at least once every 24 hours or when:**

1. Replacing a defective OCU.
2. Taking charge of an unattended consist.
3. Whenever performing programming of OCU to Locomotive.

Step	Action
1	Tilt OCU more than 45 degrees for 4 seconds. The system will initiate an emergency application
2	Verify on the Brake Pipe Pressure gauge that brake pipe pressure drops to 0 psi
3	Recover Emergency from the OCU
4	Ensure the Independent “FULL” LED is solid Green and the Train Brake “Release” LED is flashing Amber/Green.

**3.4 Miscellaneous Tests**

Step	Action
1	Check that the bell and whistle are working from OCU
2	Check that headlights are operating properly from OCU NOTE: Headlight OFF will not work while moving

**3.5 Locomotive/OCU Air Brake Test**

**Note: This test is required after locomotive has been initially set up from Manual to Remote, when taking charge of RCLS equipment and when altered by adding a locomotive or setting off a locomotive from the middle of the consist.**

Step	Action
1	Ensure handbrakes are released - locomotive will move while performing this test
2	Ensure train brake selector has been in RELEASE for at least 2 minutes
3	Take up a position on the ground to observe the brake cylinders during the test
4	Set reverser switch to FWD or REV
5	Press RSC, move speed selector to COUPLE within 5 seconds
6	Ensure locomotive(s) begins moving in selected direction and all brakes release
7	Set brake override to LOW and ensure brakes apply
8	Set brake override to RELEASE and ensure brakes release
9	Toggle train brake selector to MIN position, ensure brakes remain released
10	Toggle train brake selector to FULL position and ensure brakes apply and locomotive consist stops.
11	Place speed selector in STOP
12	Toggle train brake selector to RELEASE
13	Verify that the Train Brake -Release LED flashes Amber/Green..

### 3.6 Running Brake Test

Step	Action
1	Release hand brakes
2	Set reverser switch in FWD or REV
3	Press RSC, move speed selector to 4 MPH within 5 seconds
4	Set brake override selector to LOW. Verify that brakes apply with sufficient force to indicate they are operating properly.
5	Move brake override selector to RELEASE

**Note: If brakes do not operate correctly, stop IMMEDIATELY. Check equipment set-up and perform a Locomotive/OCU brake test as per Item 3.5.**

### 4.0 Resuming RCLS Operations

4.1 After direct transfer of OCU to relieving employee or whenever an OCU has been turned off.

**Note: Direct transfer is defined as when an OCU is handed directly to the relieving employee.**

Secure equipment, if necessary, to prevent unintended movement.

#### Resuming Operations

Step	Action
1	If OCU OFF, Turn ON. Wait for self-diagnostic test to complete, approximately 60 seconds Recover train brake from the OCU.
2	Perform status test as per item 3.1
3	Perform tilt test to first audible alarm only as per item 3.3
4	Perform a running brake test as per item 3.6

### 4.2 Replacing a Defective OCU

Step	Action
1	Replace defective OCU
2	Program OCU as per Item 2.10, and perform tests as per Items 3.1 to 3.4 and 3.6 on replacement OCU

### 5.0 Recovery Procedures

**Note:** If RCLS encounters any problems, it will stop the movement with one of 3 penalty brake applications.

<b><u>Penalty Name</u></b>	<b><u>Resulting Brake Application</u></b>
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- |                    |   |
|--------------------|---|
| 1. Service Brake   | Full independent brake application on locomotive(s)                                       |
| 2. Train Brake     | Full independent brake application plus full train brake application.                     |
| 3. Emergency Brake | Full independent brake application plus a sudden reduction on the brake pipe to zero psi. |

**Note: Whenever an emergency application of the brakes occurs while moving, a crew member must perform a pull-by inspection of equipment being handled.**

#### 5.1 Recover emergency, train brake or service from consist.

Step	Action
1	Identify and correct any problems on the locomotive(s)
2	Press STATUS button and follow recovery instructions on the OCU display.

**5.2 Recover Emergency from the OCU**

Step	Action
1	Move speed selector to STOP and place Reverser in Neutral
2	Ensure train brake selector is toggled to RELEASE and the Release LED is Amber
3	Move Brake Override selector to Emergency position to match locomotive state
4	Press RSC button and within 5 seconds move Brake Override selector to RELEASE position
5	Ensure the Independent "Full" LED is solid Green and the "Release" LED is Amber
6	Verify that the Train Brake - Release LED flashes Amber/Green.

**5.3 Recover Train Brake Penalty from OCU**

Step	Action
1	Move speed selector to STOP and place Reverser in Neutral.
2	Toggle train brake selector to FULL position to match current locomotive brake state
3	Press RSC button and within 5 seconds toggle Train Brake selector to RELEASE position
4	Verify that the Train Brake - Release LED flashes Amber/Green.

**5.4 Recover Service Brake Penalty from OCU**

Step	Action
1	Ensure Locomotive is Stationary
2	Place Speed Selector to STOP

**5.5 Release Train Brake from the OCU**

Step	Action
1	Toggle train brake selector to RELEASE position
2	Verify that the Train Brake - Release LED flashes Amber/Green.

**6.0 Pitch and Catch - transferring operator control**

Step	Action
1	Movement must be stopped
2	Set <u>both</u> OCU speed selectors to STOP and Reversers to Neutral
3	Ensure <u>both</u> OCU Train Brake controls are at identical settings
4	Controlling operator presses PITCH button
5	Within 10 seconds, receiving operator presses RSC button
6	The former Primary OCU display will now indicate "Sec" on the Right side of the display and the former Secondary OCU will indicate "Pri" on the Right side of the display

**Note:** If transfer fails, repeat procedure.

**7.0 Single OCU Operation**

Step	Action
1	Turn "OFF" both OCU's and perform OCU assignment as per 2.10 for only one OCU,

**Note:** If an OCU becomes inoperative during a shift (e.g. dead battery with no replacement), it is permissible to continue to work, but only to:

- Clear a main track or lead
- Clear public crossings at grade or cut the train as required.
- Move the locomotive(s) to a designated track.
- Complete spot (if no switching involved) as long as controlling OCU operator is at spot location.

**8.0 Transfer Movement**

**Note:** All RCLS transfer movements are governed by CROR/UM Rules and Operating procedures (GOI), pertaining to Transfer Movements.

**8.1 Initial Charging**

Step	Action
1	Couple onto cars and test coupling
2	If locomotive brakes are not sufficient to prevent movement, ensure sufficient handbrakes are applied to cars
3	Set reverser selector to NEUTRAL
4	Toggle train brake selector to CHARGE position and press RSC button for one second. Fast Idle feature will become active.
5	Ensure: (a) all air hoses are coupled, (b) angle cocks are open from consist throughout cars to be put on air and (c) that last angle cock is closed

6	Toggle Train Brake selector to RELEASE position
7	Fast Idle will continue until the Brake Pipe Recovery criteria is satisfied.
8	Ensure the Train Brake Release LED flashes Amber/Green.
9	Brake Pipe pressure can be viewed by pressing the OCU Status button twice

**8.2 Brake Test (if required)**

Step	Action
1	Ensure last car has had the air cut in for at least 5 minutes after the OCU displays the full brake pipe pressure
2	Toggle the train brake selector to FULL position
3	Ensure that brakes on the last three cars are operative if required.
4	Toggle the train brake selector to RELEASE position
5	Ensure the Train Brake Release LED changes from Amber to Green
6	Brake Pipe pressure can be viewed by pressing the OCU Status button twice

**9.0 Leaving Locomotive Unattended (with or without cars)**

**9.1 Leaving Unattended in Remote Mode**

Step	Action
1	Apply handbrakes on locomotives and cars as per GOI Section 4 and test their effectiveness as follows <ul style="list-style-type: none"> <li>• select a direction</li> <li>• press RSC</li> <li>• speed selector to COUPLE</li> <li>• ensure locomotive brakes release</li> <li>• speed selector to COAST</li> <li>• verify locomotive stops</li> <li>• speed selector to STOP</li> </ul>
2	Turn OFF headlight circuit breaker
3	Turn OFF both OCUs.

**Note: OCUs must remain in the possession of employees responsible or otherwise secured.**

**9.2 Leaving Unattended in Conventional Mode**

Step	Action
1	Set both OCU speed selectors to STOP.
2	Apply handbrakes as per GOI Section 4 and test effectiveness as per Item 9.1 - Leaving a Locomotive Unattended in Remote Mode
3	Turn OFF both OCUs
4	Place isolation switch in RUN position
5	Turn the Power switch to the "OFF" position on the LCU Interface Module.
6	Remove the locking pin of the transfer valve handle and place it in the "MANUAL" position and re-install the locking pin. (Locomotive goes into EMERGENCY)
7	Ensure independent brake is fully applied

8	Turn the Three position cut out switch to -Lead In
9	Move Automatic Brake Handle from HANDLE OFF to EMERGENCY
10	After 60 seconds, Move Automatic Brake handle to RELEASE position
11	Ensure PCS light goes out and BP pressure increases.
12	After recovery complete, leave Automatic brake valve handle as per GOI Section 4 (leaving Locomotives)
13	Turn headlight OFF
14	Close windows and lock doors as required.

## 10.0 Multiple Unit Setup/26L Automatic Brake

### 10.1 Coupling RCLS Consist to Another Locomotive

Step	Action
1	Couple on to locomotive(s) and stretch to ensure coupling.
2	Connect 27-pin electrical trainline cable between locomotives and secure
3	Couple brake pipe, open angle cocks, couple 3 MU pipes and open cut-out cocks
4	Set-up Locomotive for TRAIL as per 10.2
5	Perform a locomotive/OCU air brake test as per item 3.5

### 10.2 Changing a LEADING Locomotive to TRAILING- 26L Conventional

Step	Action
1	<p>On locomotive(s) being set-up</p> <ul style="list-style-type: none"> <li>• Ensure throttle is in IDLE and reverser handle is removed</li> <li>• Ensure GF switch, engine run and control/fuel pump switches are OFF</li> <li>• Ensure independent brake handle is fully applied</li> <li>• Make a full service Automatic Brake reduction</li> <li>• Cut-out the automatic brake valve</li> <li>• Move Automatic handle to HANDLE OFF (HO) position.</li> <li>• Place MU-2A valve in TRAIL position</li> <li>• Ensure headlight control switches on all locomotives are properly set if additional locomotives are to form part of RCLS consist for working purpose</li> </ul>

### 10.3 Changing a TRAILING Locomotive to LEADING- 26L Conventional

Step	Action
1	Ensure Locomotives are secured as per 9.1 Step 1
2	<p>On locomotive being set-up</p> <ul style="list-style-type: none"> <li>• Ensure throttle is in IDLE and reverser handle is removed</li> <li>• Ensure GF switch -OFF, engine run and control/fuel pump switches are ON</li> <li>• Ensure independent brake handle is fully applied</li> <li>• Place MU-2A valve in LEAD position</li> <li>• Move Automatic handle to RELEASE position</li> <li>• Adjust Equalizing Reservoir Pressure using Regulating Valve (if Required)</li> <li>• Cut-In the automatic brake valve</li> <li>• Leave Automatic brake valve handle as per GOI Section 4 (leaving Locomotives)</li> <li>• Ensure headlight control switches on all locomotives are properly set</li> <li>• Turn headlight OFF</li> </ul>
3	Close windows and lock doors as required.