### **DISTRIBUTED POWER**

### Procedure Guide Section I







#### **Distributed Power Set Up Requirements**

- 1. All locomotives must be set up for conventional operation before DP can be set up on any locomotive consist.
- 2. A lead locomotive must be set up in each DP consist.
- 3. All other locomotives in the consist must be set up as trail.
- 4. The required locomotive inspections and air brake tests must be completed on each consist before setting up DP.

To set up Distributed Power, locomotives must be set up in the following order:

- 1. Set up all DP Remote consists.
- 2. Set up the DP Lead consist.

#### **MSREP Information**

Contact the MSREP for any condition or defect that may prevent Distributed Power from operating.

#### **Distributed Power Operating Instructions**

More information regarding Distributed Power operation can be found in Section H of the Locomotive Engineer Operating Manual.

This Distributed Power Procedure Guide and Section H of the Locomotive Engineer Operating Manual complement each other. Therefore, it is imperative that Locomotive Engineers familiarize themselves with the content of both documents.

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ALL SYSTEMS

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G	E	GE - DIS	SPLAY SO	CREENS	GE Lo	сото	tives
9( 9( 72	) Main Re 138	BP 90 ar Flow - 0	0.	40 50 60 70 00 мрн	Reverser Cntr	Distance 0 3 0 3 6 Effort KIb- 0	CN 2220 9 12 15 18 Throtte Idle
EM: ID Code: Market: EM: Ind Brk — Lead	OT 00000 On Disabled Freight					E <b>FF</b>	uel 2413 gal
Ready							L 1 0000-0
Air Brake	End Of Train		Distributed Power	Operator Messages	Speed Control	Switches	
Distance Start	Distance Setup					Screen Controls	More Menu

GE Gauges Screen (Main Operating)

		Distributed F	Power Operation	
DP Mode	Run			
DP Mode.	Kull			
ID	A-2221	B-2220		
Throttle	Idle	Idle		
Load TE	0 K	0 K		
BP	90	90		
Flow	0	0		
Remote		Norm		
ER	90	90		
BC	72	72		
MR	138	138		
				L 1
				0000-
Mo	ove to Back			Exit
				Remot Menu

GE Distributed Power Operation Screen

**NOTE**: The Distributed Power Operation screen is only visible on the DP Lead when linked to a DP Remote unit.



EMD Gauges Screen (Main Operating)

		DIST	RIBUTED	POWERC	PERATIO	N	
		SAND	BKWARN	SVEFAR			Statement Alliana
RUN	FF A	RONT -8814	B-2280		BACK		
THROTTLE		IDLE	IDLE				
LOAD		0 A 0	0 K				
CONSIST	1	:1 0K	N/A				
BRAKE PIPE		90	90				
FLOW		10	20				
REMOTE			NORM				
EQUALIZING	3	90	90				
CYLINDER		72	72				
MAIN RES		137	137				
м	ove to Back						Remote Menu

EMD Distributed Power Operation Screen

**NOTE**: The Distributed Power Operation screen is only visible on the DP Lead when linked to a DP Remote unit.

	N J	C	DIM E	quipp	oed Lo	сото	tives
		OIM - D	ISPLAY	SCREEN	NS		
	ар 89	IRBRAKE -	MAIN 7	-вс — 72		THRT	32 — — AMPS — 0
					09.0	8 01 0	CT NO
					09.0	0 01 0	CT 09
DIST POWER	EAB SETUP	EAB DIAG	DATE TIME	LOCO SETUP	OIM INFO		LANG SEL



OIM Gauges Screens (Main Operating)

RUN	A-2532	B-2221		
THROTTLE	IDLE	IDLE		
LOAD	0 A	0 K		
BP	89	89		
FLOW	0	8		
REMOTE		NORM		
ER	90	90		
CYLINDER	72	72		
MAIN RES	137	137		
BACK			REMOTE SAND	REMOTE MENU

OIM Distributed Power Operation Screen

**NOTE**: The Distributed Power Operation screen is only visible on the DP Lead when linked to a DP Remote unit.

LANGUAGE SET UP SYSTEMS

ALL

In situations where the language needs to be switched to English use the following procedures.

#### GE - Language Setup

To change the operator display screen language from French to English, proceed as follows:

1.	Press	Suite du menu
2.	Press	Contrôles écran
3.	Press	English

#### EMD - Language Setup

To change the operator display screen language from French to English, proceed as follows:



#### OIM - Language Setup

To change the operator display screen language from French to English, proceed as follows:

- 1.PressLANG<br/>SEL2.PressMODIFY
  - The LANGUE box will change to ANGLAIS.
- 3. Press ACCEPT



#### At Origin - DP Linked and Tested at Safety Inspection Location

The following chart outlines the process and procedures that must be completed when taking charge of DP locomotives that are already linked and tested at a Safety Inspection Location.

#### Locomotive Set Up







#### **GE - Verify Proper DP Set Up**

DP Mode:	Run <b>4</b> S	et to Run, s	see (A) below
ID	A-2221	B-2220	
Throttle	Idle	Idle	
Load TE	0 K	0 K	
Consist TE	1:1 0K		
BP	89	89	
Flow	0	0 🔶	If OUT, see (C) below
Remote		Norm 🔶	- If IDLE, BV OUT, ISOL or
ER	90	90	S/O, see (B) below
BC	72	72	

A) From the Gauges screen, set DP Mode to RUN:



B) Set DP Remote status to Norm (Normal):

- i) Press REMOTE MENU
  ii) Press NORMAL
  iii) Press EXECUTE
- C) To change the flow indication from **Out** to a numeric value the DP Remote consist must detect an increase in BP pressure of at least 3 PSI within 3 minutes of receiving an automatic brake release command.



#### **GE - Direction Agreement Test - Single Remote Consist**

From the DP Operation screen, complete the direction agreement test as per procedure outlined below.

- 1. Ensure **DP Mode** is set to **RUN**.
- 2. Place GEN FIELD to ON.
- 3. Place Reverser to Forward or Reverse.
- Press Move to Back
   Back
   NOTE: The Move To Back key is only visible when the DP Mode is RUN, the GEN FIELD is ON and the Reverser is in Forward or Reverse.
   Press Traction
- 6. Press **EXECUTE**
- 7. Verify that the DP Remote **Throttle** displays **N1** and the **Load** displays a numeric value.

DP Mode:	DP Mode: Run - Step 1				
ID	A-2221	B-2220			
Throttle	Idle	N1 Step 7			
Load TE	0 K	4K			
Consist TE	1:1 0K				
BP	90	90			
Flow	0	0			
Remote		Norm			
ER	90	90			
BC	0	0			

- 8. Modulate the **Independent Brake** handle to allow movement.
- 9. Press More if necessary.
- 10. After the slack bunches or stretches according to the

selected reverser position, press	Move to Front	to return to
-----------------------------------	------------------	--------------

synchronous operation.

11. Return Reverser to Neutral position.

#### **GE - Direction Agreement Test - Multiple Remote Consists**

**NOTE:** When linked to multiple remotes, direction agreement of each remote must be tested individually using these procedures.

From the DP Operation screen, complete the direction agreement test as per procedure outlined below.

- 1. Ensure DP Mode is set to RUN.
- REMOTE 2. Press (if visible). MENU Select Select the "C" DP Remote using 3. or Remote 4. Press IDLE to change the "C" Remote's mode to idle. Verify that the "C" DP Remote mode changes to Idle. 5. Control 6. Press Menu Place GEN FIELD to ON. 7 8. Place Reverser to Forward or Reverse. Move to 9. Press until the divider line (fence) appears Back

between the "A" DP Lead and "B" DP Remote.

- 10. Press Traction
- 11. Press EXECUTE
- 12. Verify that the Throttle field on the "B" DP Remote displays N1 and the Load field displays a numeric value.

ID	A-2221	B-2220	C-2260
Throttle	Idle	N1	Idle Stop 12
Load TE	0 K	4 K 🖍	ок Step 12
Consist TE	1:1 0K		
BP	90	90	90
Flow	10	20	20
Remote		Norm	Idle - Step 5
ER	90	90	90

- 13. Modulate the **Independent Brake** handle to allow movement.
- 14. Press More if necessary.
- 15. After the slack bunches or stretches according to the selected reverser position, press **IDLE** to return

the Remote's traction to idle.

- Fully apply the Independent Brake and return Reverser to Neutral position.
- 17. Press REMOTE MENU
- 18. Ensure the "C" DP Remote is selected.
- 19. Press **NORMAL** followed by **EXECUTE** to return the "C" DP Remote to Normal mode.

continued on next page...





	Set to Run,	see (A) b	elow	
	<b>↓</b>	FRONT		BACK
	RUN	A-8821	B-8814	
F	THROTTLE	IDLE	IDLE	
	LOAD	0 A	0 A	
	CONSIST	0:1 0K	N/A	
	BRAKE PIPE	90	90	
	FLOW	0	0 🔶	-If OUT, see (C) below
	REMOTE		NORM 🗲	— If IDLE, BV OUT, ISOL or
	EQUALIZING	90	90	S/O see (B) below
	CYLINDER	72	72	0/0, see (b) below

A) From the Gauges screen, set DP Mode to RUN:



B) Set DP Remote status to Norm (Normal):



when following prompt appears:

#### Normal: Execute Command?

C) To change the flow indication from **Out** to a numeric value the DP Remote consist must detect an increase in BP pressure of at least 3 PSI within 3 minutes of receiving an automatic brake release command.



#### EMD - Direction Agreement Test - Single Remote Consist

From the DP Operation screen, complete the direction agreement test as per procedure outlined below.

- 1. Ensure DP Mode is set to RUN.
- 2. Place GEN FIELD to ON.
- 3. Place Reverser to Forward or Reverse.
- 4. Press NOTE: The Move to Back key is only visible when the DP Mode is RUN, the GEN FIELD is ON and the Reverser is in Forward or Reverse.
- 5. Press Traction
- 6. Press YES

#### when following prompt appears:

#### **TRACTION: Execute Command?**

7. Verify that the **Remote Throttle** displays **N1** and the **Load** displays a numeric value.

Step 1 ↓	FRONT		BACK
RUN	A-8821	B-8814	
THROTTLE	IDLE	N1	-Stop 7
LOAD	0 A	100 A	Step /
CONSIST	1:1 0K	N/A	
BRAKE PIPE	90	90	
FLOW	10	20	
REMOTE		NORM	
EQUALIZING	90	90	
CYLINDER	80	80	

- 8. Modulate the **Independent Brake** handle to allow movement.
- 9. Press More if necessary.
- 10. After the slack bunches or stretches according to the

selected reverser position, press

Move to to re

to return to

synchronous operation.

11. Return Reverser to Neutral position.

#### EMD - Direction Agreement Test - Multiple Remote Consists

**NOTE:** When linked to multiple remotes, direction agreement of each remote must be tested individually using these procedures.

From the DP Operation screen, complete the direction agreement test as per procedure outlined below.



"C" DP Remote to Normal mode.

continued on next page...

		$\mathbf{i}$	ŀ	-MD Loc	omotives
	EM	D) TAKIN	IG CHARGE OF	DP UNITS	0111011725
EM	D - Dire	ction Agre	ement Test - N	Iultiple Ren	note Consists
C	ontinue	d from pre	vious page.		
21.	Verify	that the "C	" DP Remote n	node chang	es to Normal.
22.	Select	the "B" DP	Remote using	$\leftarrow$	Or Select Remote
23.	Press	Idle	to change the	"B" Remot	e's mode to
	idle.				
24.	Verify	that the "B	" DP Remote n	node chang	es to Idle.
25.	Press	Main Menu	followed by	Resume Dist Pwr	
26.	Place I	Reverser to	Forward or Re	everse.	
27.	Press	Traction			
28.	Press	YES	when followi	ng prompt a	appears:
	TRACT	ION: Execu	ite Command?	,	
29.	Verify	that the Th	rottle field on he Load field d	the "C" DP	Remote meric value.
	RUN	FRONT		BACK	
Ţ	HROTTLE	IDLE	IDLE N1	} Step 2	9
C	ONSIST	1:1 0K	N/A N/A 90 90		26.
FI	LOW	10	20 20		
<b>E</b>	QUALIZIN	G 90 late the <b>Ind</b>	90 90	Step 24	a allow
50.	mover	nent.			
31.	Press	More Traction	if necessary.		
32.	After t	he slack bu	inches or strete	ches accord	ing to the
	selecte	ed reverser	position, press	5 Idle	to return
22	the Re	mote's trac	ction to idle.		Description
33.	Fully a	al position.	dependent Bra	ike and retu	irn <b>Reverser</b> to
34.	Press	Move to	until the divid	er line (fend	ce) disappears.
		Front		``	
35.	(Retur	n to synchr	onous operatio	on.)	
20	(Retur Press	n to synchr Remote Menu	onous operatio	on.)	
36.	(Retur Press Ensure	n to synchr Remote Menu 2 the "B" Di	onous operatio P Remote is sel	on.) ected.	
36. 37.	(Retur Press Ensure Press	Front rn to synchr Remote Menu e the "B" DI Normal	onous operatio P Remote is sel followed by	on.) ected.	to return the
36. 37.	(Retur Press Ensure Press "B" DF	r to synchr Remote Menu e the "B" DI Normal	onous operation P Remote is sel followed by Normal mode	ected. EXECUTE	to return the
36. 37. 38.	(Retur Press Ensure Press "B" DF Verify Norma	Remote Normal P Remote to Normal P Remote to that the "B	onous operation P Remote is sel followed by D Normal mode and "C" DP R	ected. <b>EXECUTE</b> 1 2. Semote mod	to return the des change to

	FRONT			BACK
RUN	A-8821	B-8814	C-8825	
THROTTLE	IDLE	IDLE	IDLE	
LOAD	0 A	0 A	0 A	
CONSIST	1:1 0K	N/A	N/A	
BRAKE PIPE	90	90	90	
FLOW	10	20	20	
REMOTE		NORM -	NORM 4	
EQUALIZING	90	90	90	Step 3

**OIM - Verify Proper DP Set Up** 

RUN	A-2538 — Set to Ru	B-2221 n, see (A) b	elow	
THROTTLE	IDLE	IDLE		
LOAD	0 A	0 K		
BP	89	89		
FLOW	0	0 🔶	-If OUT, see (C) below	
REMOTE		NORM +	— If IDLE, BV OUT, ISOL	or
ER	90	90	S/O, see (B) below	
CYLINDER	72	72		

A) From the Gauges screen, set DP Mode to RUN:



to return to the Gauges screen.

B) Set DP Remote status to Norm (Normal):



C) To change the flow indication from **Out** to a numeric value the DP Remote consist must detect an increase in BP pressure of at least 3 PSI within 3 minutes of receiving an automatic brake release command.

# OIM Equipped Locomotives

#### **OIM - Direction Agreement Test - Single Remote Consist**

From the DP Operation screen, complete the direction agreement test as per procedure outlined below.

- 1. Ensure **DP Mode** is set to **RUN**.
- 2. Place GEN FIELD to ON.
- 3. Place Reverser to Forward or Reverse.
- 4. Press BACK
- 5 Press TRCTN
- 5. Press TRCTN 6. Press EXEC
- **NOTE:** The **Back** key is only visible when the DP Mode is RUN, the GEN FIELD is ON and the Reverser is in Forward or Reverse.
- 7. Verify that DP Remote **Throttle** displays **N1** and the **Load** displays a numeric value.

RUN 🗲	A-2538 — Step 1	B-2221
THROTTLE	IDLE 0 A	N1 4 K }← Step 7
BP	90	90
FLOW	0	0
REMOTE		NORM
ER	90	90
CYLINDER	0	0

- 8. Modulate the **Independent Brake** handle to allow movement.
- 9. Press TRCTN , if necessary.
- 10. After the slack bunches or stretches according to the

selected reverser position, press

FRONT to return to

synchronous operation.

11. Return Reverser to Neutral position.

#### **OIM - Direction Agreement Test - Multiple Remote Consists**

**NOTE:** When linked to multiple remotes, direction agreement of each remote must be tested individually using these procedures.

From the DP Operation screen, complete the direction agreement test as per procedure outlined below.

#### 1. Ensure **DP Mode** is set to **RUN**.

2.	Press REMOTE (if visible).
3.	Select the "C" DP Remote using $\longrightarrow$ or <b>SELECT</b> REMOTE
4.	Press IDLE to change the "C" Remote's mode to
	idle.
5.	Verify that the "C" DP Remote mode changes to Idle.
6.	Press CONTROL MENU
7.	Place GEN FIELD to ON.
8.	Place Reverser to Forward or Reverse.
9.	Press BACK until the divider line (fence) appears
	between the "A" DP Lead and "B" DP Remote.
	TROTN

- 10. Press IRCIN
- 11. Press
- 12. Verify that the Throttle field on the "B" DP Remote displays N1 and the Load field displays a numeric value.

RUN	A-2538	B-2221	C-2260
THROTTLE	IDLE	N1 1	IDLE Step 12
LOAD	0 A	4 K 🕻	0 K
BP	90	90	90
FLOW	10	20	20
REMOTE		NORM	IDLE - Step 5
ER	90	90	90

- 13. Modulate the **Independent Brake** handle to allow movement.
- 14. Press

if necessary.

15. After the slack bunches or stretches according to the

selected reverser position, press **IDLE** to return

the Remote's traction to idle.

TRCTN

- Fully apply the Independent Brake and return Reverser to Neutral position.
- 17. Press REMOTE MENU
- 18. Ensure the "C" DP Remote is selected.
- 19. Press **NORMAL** followed by **EXEC** to return the "C" DP Remote to Normal mode.

continued on next page...

## OIM Equipped Locomotives TAKING CHARGE OF DP UNITS OIM - Direction Agreement Test - Multiple Remote Consists ...continued from previous page. 21. Verify that the "C" DP Remote mode changes to Normal. 22. Select the "B" DP Remote using or SELECT 23. Press DLE to change the "C" Remote's mode to

- idle.
- 24. Verify that the "B" DP Remote mode changes to Idle.
- 25. Press MAIN MENU
- 26. Place Reverser to Forward or Reverse.
- 27. Press TRCTN
- 28. Press EXEC
- 29. Verify that the Throttle field on the "C" DP Remote displays N1 and the Load field displays a numeric value.

RUN	A-2538	B-2221	C-2260
THROTTLE	IDLE	IDLE	N1 }→ Step 29
LUAD	0 A	0 K	4 K J
BP	90	90	90
FLOW	10	20	20
REMOTE		IDLE 🔶	NORM Stop 24
ER	90	90	90 Step 24

Modulate the Independent Brake handle to allow movement.

- 31. Press TRCTN if necessary.
- 32. After the slack bunches or stretches according to the selected reverser position, press **IDLE** to return

the Remote's traction to idle.

- Fully apply the Independent Brake and return Reverser to Neutral position.
- 34. Press **FRONT** until the divider line (fence) disappears. (Return to synchronous operation.)
- 35. Press REMOTE MENU
- 36. Ensure the "B" DP Remote is selected.
- 37. Press **NORMAL** followed by **EXEC** to return the "B" DP Remote to Normal mode.
- Verify that the "B" and "C" DP Remote modes change to Normal.

DUN	A-2538	B-2221	C-2260
KUN			
THROTTLE	IDLE	IDLE	IDLE
LOAD	0 A	0 K	0 K
BP	90	90	90
FLOW	10	20	20
REMOTE		NORM -	
ER	90	90	90 Step 38

#### At Origin - DP Linking and Testing at Other Than Safety Inspection Location

The following chart outlines the process and procedures that must be completed when taking charge of DP locomotives where mechanical shop staff is not readily available.

#### Locomotive Set Up



# GE Locomotives

#### GE - Remote Unit Set Up

- Ensure regulating/feed valve is set to 90 psi, EOT ID Code is set to 00000 and if equipped, marker lights ON when DP Remote is on extreme tail end.
- 2. Ensure DP Remote switches and controls are in correct positions (see table below).

	SWITCHES AND CONTROLS						POSITION				
	ENGI	NE CO	NTRO	DL				RUN			
	DISTR	IBUTE	D PC	DWE	RΒ	REAKE	R		ON		
	ENGI	NE RU	N					OFF			
	GEN F	IELD						OFF			
	CONT	CONTROL							ON		
	DYNA	DYNAMIC BRAKE							ON		
	REVE	RSER							Remove	d	
	AUTO	MATIO	C BR/	٩KE					REL (Relea	ase)	
	INDE	PENDE	NT E	RAK	ΚE			F	ULL APPLIC	ATION	
3.	Press Distributed Power on Gauges scree						en.				
4.	Press REMOTE SETUP										
5.	Enter	the <b>DF</b>	<sup>P</sup> Lea	<b>d</b> lo	com	otive	nun	nbe	er using:		
	COL	JNT P	CO	TAUC OWN	Г	DI	GIT		DIGIT RIGHT		
_		OPPO	RITE		6						
6.	Press	DIR	'N	or	D		to	set	: DP Remot	e unit	
	directi	on rel	ative	to [	DP L	.ead u	nit.				
7.	Press	DO	NE								
8.	Simult • A p from • DP • Cre	aneou enalty m the indica	isly: bral DP L tor d ssage	ke is ead lispla e dis	init uni ays play	iated. t). <b>Remo</b> /s:	(PC <b>te</b> .	S w	vill be recov	ered	
AB	CONF	IGURE	D A	S DP	C R	ЕМОТ	EUI	NIT			
	DP TO	RELEA	SE, 4	AUTO	о то	D HAN	DLE	-0	FF		
9.	Place I	Indepe	ende	nt B	rak	e hand	dle t	o R	EL (Release	2).	
10.	Place I	Autom	ומדוכ	Bra	ke n	andle	to I	10	(Handle-Of	T).	
11.	Insert	IOCKIN	g pir	on	the	Autor	nati nati	св	rake nandle	). 	
12.	from <b>F</b>	reight	; to <b>(</b>	cree Cut C	n, A Dut.	uto B	rk st	att	is indicator	changes	
	— ER —		BP —						- Distance		
	0	Rear		(	20	0.00	60 70 - 80 MPH		0 9 6 3 0 3 6 everser Effort Kib Cntr 0	2250 9 12 15 18 Throttle Idle	
		PCS OPEN							NO	RF COMM	
		RED AS D	PC RE		UNIT	FF					

 ID Code:
 00000

 Marker:
 Off

 EM:
 Disabled

 Ind Brk
 - Auto Brk

 Cut Out
 Remote

13. Close windows and lock doors.

- 14. Release hand brake(s).
- 15. Ensure angle cocks are fully open on coupled ends.

## GE Locomotives

#### TAKING CHARGE OF DP UNITS

#### GE - Lead Unit Set Up

 Ensure DP Lead switches and controls are in correct positions (see table below).

SWITCHES AND CONTROLS	POSITION
ENGINE CONTROL	RUN
DISTRIBUTED POWER BREAKER	ON
ENGINE RUN	ON
GEN FIELD	ON
CONTROL	ON
DYNAMIC BRAKE	ON
REVERSER	Neutral
AUTOMATIC BRAKE	REL (Release)
INDEPENDENT BRAKE	FULL APPLICATION

- 2. Press Distributed Power on Gauges screen.
- 3. Press LEAD SETUP

#### 4. Enter the **DP Remote** locomotive number using:

COUNT	COUNT	DIGIT	DIGIT
UP	DOWN	LEFT	RIGHT

5. Press LINK

#### 6. Simultaneously:

- A penalty brake is initiated.
- Crew message displays:

#### DISTRIBUTED POWER LINK / UNLINK PENALTY TO CLEAR PENALTY, GO TO SUPPRESSION

- 7. Place Automatic Brake handle to SUP (Suppression).
  - Crew message displays:

#### DISTRIBUTED POWER LINK / UNLINK PENALTY REMAIN IN SUPPRESSION FOR 8 SECONDS

• Followed by:

## DISTRIBUTED POWER LINK / UNLINK PENALTY

- The above crew message may remain displayed for up to 2 minutes, no further action is required during this time.
- 8. Wait for Linked OK message to appear.
- 9. Link to additional DP Remote(s) if required.
- 10. Press DONE
- 11. Wait for crew message to display:

DP: CHARGE TRAIN BEFORE RUNNING BRAKE PIPE TEST

- Place Automatic Brake handle to REL (Release) to recover penalty and charge the air brake system.
  - Crew message displays:

#### DP: PERFORM BRAKE PIPE TEST WHEN READY

NOTE: If Distributed Power Operation screen doesn't appear, press Distributed Power



#### GE - DP Brake Pipe Test

- 1. Ensure **Reverser** is **centered** and **Automatic Brake** handle is in **REL** (Release).
- 2. Ensure individual **Flow** is **not greater than 60 cfm** on the DP Lead or DP Remote(s).
- 3. Ensure sum of DP Lead and DP Remote(s) Flow is 90 cfm or less and is stable for 1 min (±1 cfm).

ID	A-2221	B-2220
Throttle	Idle	Idle
Load TE	0 K	0 К
Consist TE	0:1 0K	
BP	90	90 Step 3
Flow	10	20 4

NOTE: If Brake Pipe Test key is visible go to Step 7.

4.	Press	Distributed Power	on Gauges screen.
5.	Press	DP MAIN MENU	
6.	Press	SYSTEM	
7.	Press	BRK PIPE TEST	NOTE: The Brake Pipe Test key is only visible when the train is stopped, Independent Brake is in FULL APPLICATION and the Automatic
8.	Press	EXECUTE	Brake III KEL.

Crew message displays:

#### DP: BP TEST: SET AUTO BRAKE TO MIN SERVICE

- 9. Place Automatic Brake handle to exactly MIN (Minimum Reduction) or test cannot be completed.
  - Crew message displays:

#### **DP: BP TEST: IN PROGRESS**

• BP Test may take up to 3 minutes to complete. During this time DP System Mode will be in Idle.

The following is only applicable during DP Set Up.

Crew message displays:

#### DP: BP TEST OK, SELECT RUN MODE ON MODE SCREEN

#### 10. Set DP Mode to RUN.

a) Press	Distributed Power	on Gauges screen.		
b) Press	DP Main Menu			
c) Press	MODE			
d) Press	RUN			
e) Press	EXECUTE			
f) Press	EXIT	to return to the Gauges screen.		
DP Mode: Run <del>- Step</del> 10				
ID A	A-2221 B-	2220		
Throttle	Idle	Idle		

**NOTE:** In the event of a Brake Pipe test failure, recharge the train and restart procedure from step 1.



#### EMD - Remote Unit Set Up

- Ensure regulating/feed valve is set to 90 psi, EOT ID Code is set to 00000 and if equipped, marker lights ON when DP Remote is on extreme tail end.
- 2. Ensure DP Remote switches and controls are in correct positions (see table below).

							DOSITION		
							PUSITION		
	DP RADIO BREAKER								
							OFF		
	GEN						OFF		
	FLIFI		ı				ON		
			VITCH	4				ON)	
	REVE	RSFR	viici				Remov	ed.	
	AUTO	ΜΑΤΙά		KF			REL (Rele		
	INDE	PENDE		RAKE					
	INDE							c/ mon	
3.	Press	Mor Choir	re ces	if Dis	stributed Power	is no	ot visible.		
4.	Press	Distrib Pow	outed ver	on G	auges sci	reen			
5.	Press	REM0 SET	DTE UP						
6.	Enter	the DP	Lead	locor	notive n	umb	er using:		
	COU	NT >	CO DO	UNT WN	DIGIT		DIGIT RIGHT		
_		OPPO	SITE		SAME	1.			
7.	Press	DIR	'N	or	DIR'N	to s	set DP Rem	ote unit	
	directi	on rela	ative	to DP	Lead uni	t.			
8.	Press	DOM	NE						
9.	Simultaneously:								
	• A p	enalty	brak	e is ini	tiated. (F	PCS	will be reco	vered	
		m the		ead un	it).				
	• DP	w mos		displa	appears.				
	• cre	wines	sage	uispia	iys.				
PL	ACE IND	AIR BRA P HANI	AKE CO DLE IN	JNFIGU TO REL	JRED AS DI EASE, AUT	pc RE 10 HA	NDLE TO HA	NDLE-OFF	
10.	Place I	ndepe	ender	nt Bral	<b>ke</b> handle	e to	<b>REL</b> (Releas	se).	
11.	Place I	Autom	atic	Brake	handle to	o HC	) (Handle-O	off).	
12.	Insert	lockin	g pin	on the	e Automa	atic I	Brake hand	le.	
13.	On the	e Gaug - <b>CUT (</b>	es sc DUT.	reen, I	AIR BRAH	KE SI	E <b>TUP</b> displa	iys:	
141, Equ	,172 MI valizing Res –	CN 8847 Brake	Pipe —		30 40 50	>	Accel Len 0 MPH 5,71	8 ft Center	
				£ 20		50 7	Consist Effor		
	U	Ľ	)	-10	<b>_</b>	70 -	Load -	A Idle	
Rea		Main 138	- BC -	5	80	$\checkmark$	0 600 10	000 1500	
WHE	EL PCS	100	DYN		U.U M	UNIT	AB	RF NO EOT	
SLIF	OPEN		BRAKE	±0.01	ALERI	ALARM		COMM MOVE	
					ÎN	_		7 -	
	FUEL 2,81	0 Imp C	Gal		IDENT	0	Арр	lies to	
			TUP				TIBS	only.	
14	Close	- CUI (		nd look	dears				
14.	Close	windo	wsar	10 10Ck	uoors.				

- 15. Release hand brake(s).
- 16. Ensure angle cocks are fully open on coupled ends.

## EMD Locomotives TAKING CHARGE OF DP UNITS EMD - Lead Unit Set Up

 Ensure DP Lead switches and controls are in correct positions (see table below).

SWITCHES AND CONTROLS	POSITION
ISOLATION SWITCH	RUN
DP RADIO BREAKER	ON
ENGINE RUN	ON
GEN FIELD	ON
FUEL PUMP	ON
DYN BRK SWITCH	CUT IN (ON)
REVERSER	Neutral
AUTOMATIC BRAKE	REL (Release)
INDEPENDENT BRAKE	FULL APPLICATION

- 2. Press **Distributed** on Gauges screen.
- 3. Press LEAD SETUP

DIGIT

LEFT

DIGIT

RIGHT

4. Enter the **DP Remote** locomotive number using:

COUNT	COUNT
UP	DOWN

- 5. Press LINK
- 6. Simultaneously:
  - A penalty brake is initiated.
  - Crew message displays:

#### DISTRIBUTED POWER LINK / UNLINK PENALTY REMAIN IN SUPPRESSION FOR 8 SECONDS

- 7. Place Automatic Brake handle to SUP (Suppression).
- 8. Wait for Linked OK message to appear.
- 9. Link to additional DP Remote(s) if required.
- 10. Press DONE
  - Crew message displays:

#### DISTRIBUTED POWER LINK / UNLINK PENALTY PENALTY SOURCE IS STILL PRESENT

 The above crew message may remain displayed for up to 2 minutes, no further action is required during this time. It will then change to the following message:

#### CHARGE TRAIN BEFORE RUNNING BRAKE PIPE TEST

- 11. When the above crew message appears, place the **Automatic Brake** handle to **REL** (Release) to recover penalty and charge the air brake system.
  - Crew message displays:

#### PERFORM BRAKE PIPE TEST WHEN READY

#### EMD - DP Brake Pipe Test

- 1. Ensure **Reverser** is **centered** and **Automatic Brake** handle is in **REL** (Release).
- 2. Ensure individual **Flow** is **not greater than 60 cfm** on the DP Lead or DP Remote(s).
- 3. Ensure sum of DP Lead and DP Remote(s) Flow is 90 cfm or less and is stable for 1 min (±1 cfm).

	FRONT		BACK
RUN	A-8821	B-8814	
THROTTLE	IDLE	IDLE	
LOAD	0 A	0 A	
CONSIST	0:1 0K	N/A	
BRAKE PIPE	90	90	Step 3
FLOW	10 🔶	20	

NOTE: If Brake Pipe Test key is visible go to Step 6.

4.	Press	Distributed Power	on Gauges screen.		
5.	Press	SYSTEM			
6.	Press	BRK PIPE TEST	<b>NOTE:</b> The Brake Pipe Test key is only visible when the train is stopped, Independent Brake is in FULL APPLICATION and the Automatic		
7.	Press	EXECUTE	Blake III KEL.		
	Crew message displays:				

BP TEST: SET AUTO BRAKE TO MIN SERVICE

- 8. Place Automatic Brake handle to exactly MIN (Minimum Reduction) or test cannot be completed.
  - Crew message displays:

#### **BP TEST: IN PROGRESS**

• BP Test may take up to 3 minutes to complete. During this time DP System Mode will be in Idle.

The following is only applicable during DP Set Up.

Crew message displays:

#### BP TEST OK, SELECT RUN MODE ON MODE SCREEN

9. Set DP Mode to **RUN**.



Step 9	FRONT A-8821	B-8814	BACK	
THROTTLE	IDLE	IDLE		

**NOTE:** In the event of a Brake Pipe test failure, recharge the train and restart procedure from step 1.

# OIM Equipped Locomotives

#### OIM - Remote Unit Set Up

- Ensure regulating/feed valve is set to 90 psi, EOT ID Code is set to 00000 and if equipped, marker lights ON when DP Remote is on extreme tail end.
- 2. Ensure DP Remote switches and controls are in correct positions (see table below).

	SWITCHES AND CONTROLS	POSITION
	ENGINE CONTROL	RUN
	DP RADIO MODULE BREAKER	ON
	ENGINE RUN	OFF
	GEN FIELD	OFF
	CONTROL	ON
	DYNAMIC BRAKE	ON
	REVERSER	Removed
	AUTOMATIC BRAKE	REL (Release)
	INDEPENDENT BRAKE	FULL APPLICATION
3.	Press <b>DIST</b> <b>POWER</b> on Gauges sci	reen.
4.	Press SETUP	
5.	Enter the <b>DP Lead</b> locomotive n	umber using:
	COUNT COUNT DIGI UP DOWN LEF	T DIGIT RIGHT
6.	Press OPP or SAME	to set DP Remote unit
	direction relative to DP Lead uni	t.
7.	Press DONE	
8.	Simultaneously:	
	• A penalty brake is initiated (P the DP Lead unit).	CS will be recovered from
	• DP REMOTE ENABLED appea	rs.
	Crew message displays:	
AB INI	CONFIGURED AS DPC REMOTE UNIT DP TO RELEASE; AUTO TO HANDLE-OFI	F
9.	Place Independent Brake handle	e to <b>REL</b> (Release).
10.	Place Automatic Brake handle to	o <b>HO</b> (Handle-Off).
11.	Insert locking pin on the Automa	atic Brake handle.
12.	On the Gauges screen, the AUTC changes from FREIGHT to CUT O	<b>D BRK</b> status indicator <b>DT</b> .
		90 100 110 120

- 13. Close windows and lock doors.
- 14. Release hand brake(s).
- 15. Ensure angle cocks are fully opened on coupled ends.

#### OIM - Lead Unit Set Up

1. Ensure DP Lead switches and controls are in correct positions (see table below).

	SWITCHES AND CONTROLS	POSITION
	ENGINE CONTROL	RUN
	DP RADIO MODULE BREAKER	ON
	ENGINE RUN	ON
	GEN FIELD	ON
	CONTROL	ON
	DYNAMIC BRAKE	ON
	REVERSER	Neutral
	AUTOMATIC BRAKE	REL (Release)
	INDEPENDENT BRAKE	FULL APPLICATION
2.	Press DIST POWER on Gauges scre	en.
3.	Press LEAD SETUP	
4.	Enter the <b>DP Remote</b> locomotive	number using:
	COUNT COUNT DIGIT UP DOWN LEFT	DIGIT RIGHT
5.	Press LINK	
6.	Simultaneously:	
	<ul> <li>A penalty brake is initiated</li> </ul>	
	Crew message displays:	
DI	STRIBUTED POWER LINK / UNLINK PENAI	LTY
тс	CLEAR PENALTY, GO TO SUPPRESSION	
7.	Place Automatic Brake handle to	SUP (Suppression).
	Crew message displays:	
DIS REI	TRIBUTED POWER LINK / UNLINK PENAL MAIN IN SUPPRESSION FOR 8 SECONDS	ТҮ
	<ul> <li>The above crew message may to 2 minutes, no further action time.</li> </ul>	remain displayed for up is required during this

- 8. Wait for Linked OK message to appear.
- 9. Link to additional DP Remote(s) if required.
- 10. Press DONE
- 11. Wait for crew message to display:

CHARGE TRAIN BEFORE RUNNING BRAKE PIPE TEST

12. Place Automatic Brake handle to REL (Release) to recover penalty and charge the air brake system.
Crew message displays:

PERFORM BRAKE PIPE TEST WHEN READY

#### OIM - DP Brake Pipe Test

- 1. Ensure **Reverser** is **centered** and **Automatic Brake** handle is in **REL** (Release).
- 2. Ensure Individual **Flow** is not **greater than 60 cfm** on the DP Lead or DP Remote(s).
- 3. Ensure sum of DP Lead and DP Remote(s) Flow is 90 cfm or less and is stable for 1 min (±1 cfm).

	A-2538	B-2221
RUN		
THROTTLE	IDLE	IDLE
LOAD	0 A	0 K
BP	90	90 Step 3
FLOW	10 +	20 +

NOTE: If Brake Pipe Test key is visible go to Step 7.

4.	Press	DIST POWER	on Gauges screen.
5.	Press	DP MAIN MENU	
6.	Press	SYSTEM	
7.	Press	BP TEST	<b>NOTE:</b> The Brake Pipe Test key is only visible when the train is stopped, Independent Brake is in FULL APPLICATION and the Automatic
8.	Press	EXEC	Brake in REL.
	• Cre	w message	displays:
BF	P TEST: S	ET AUTO BRA	AKE TO MIN SERVICE

- Place Automatic Brake handle to exactly MIN (Minimum Reduction) or test cannot be completed.
  - Crew message displays:

**BP TEST: IN PROGRESS** 

 BP Test may take up to 3 minutes to complete. During this time DP System Mode will be in Idle.

The following is only applicable during DP Set Up.

Crew message displays:

BP TEST: OK, SELECT RUN MODE ON MODE SCREEN

10. Set DP Mode to **RUN**.

a)	Press	MAIN MENU	on Gauges screen.
b)	Press	MODE	
c)	Press	RUN	
d)	Press	EXEC	
e)	Press	EXIT	to return to the Gauges screen.
RUN	-	A−2538 Step 10	B-2221

**NOTE:** In the event of a Brake Pipe test failure, recharge the train and restart procedure from step 1.

IDLE

IDLE

ROTTLE

#### PRE-DEPARTURE REQUIREMENTS AT ORIGIN

#### **GE - DP Last Car Emergency Test**

- 1. Close angle cock between DP Lead consist and first car.
- 2. Close the angle cock ahead of the car coupled to the DP Remote consist.
- 3. Place Automatic Brake handle to EMER (Emergency).
  - Crew message displays:

#### AUTOMATIC HANDLE EMERGENCY REMAIN IN EMERGENCY FOR 60 SECONDS

- 4. Verify that DP Remote and last car go into emergency.
- 5. Ensure DP Remote **BP** is **0 psi** and **Flow** is **Out**.
- 6. After 60 seconds the crew message displays:

#### DISTRIBUTED POWER EMERGENCY EMERGENCY STILL PRESENT

• Remain in EMER (Emergency) position for another 30 seconds or until crew message displays:

#### DISTRIBUTED POWER EMERGENCY TO RECOVER AIR BRAKE, GO TO RELEASE

- 7. Place Automatic Brake handle to REL (Release).
  - ER and BP pressures return to 90 psi.
- 8. Open the angle cock ahead of the car coupled to the DP Remote consist.
- 9. Open angle cock between DP Lead consist and first car.
  - Penalty brake will recover.
  - Flow will change from OUT to a numeric value once a rise of at least **3 psi** in Brake Pipe pressure is detected within 3 minutes.

## EMD Locomotives PRE-DEPARTURE REQUIREMENTS AT ORIGIN

#### EMD - DP Last Car Emergency Test

- 1. Close angle cock between DP Lead consist and first car.
- Close the angle cock ahead of the car coupled to the DP Remote consist.
- 3. Place Automatic Brake handle to EMER (Emergency).
  - Crew message displays:

#### AUTOMATIC HANDLE EMERGENCY REMAIN IN EMERGENCY FOR 60 SECONDS

- 4. Verify that DP Remote and last car go into emergency.
- 5. Ensure DP Remote **BP** is **0 psi** and **Flow** is **Out**.
- 6. After 60 seconds the crew message displays:

#### DISTRIBUTED POWER EMERGENCY EMERGENCY STILL PRESENT

• Remain in EMER (Emergency) position for another 30 seconds or until crew message displays:

DISTRIBUTED POWER EMERGENCY TO RECOVER AIR BRAKE, GO TO RELEASE

- 7. Place Automatic Brake handle to REL (Release).
  - ER and BP pressures return to 90 psi.
- 8. Open the angle cock ahead of the car coupled to the DP Remote consist.
- 9. Open angle cock between DP Lead consist and first car.
  - Penalty brake will recover.
  - Flow will change from OUT to a numeric value once a rise of at least **3 psi** in Brake Pipe pressure is detected within 3 minutes.

#### **OIM - DP Last Car Emergency Test**

- 1. Close angle cock between DP Lead consist and first car.
- 2. Close the angle cock ahead of the car coupled to the DP Remote consist.
- 3. Place Automatic Brake handle to EMER (Emergency).
  - Crew message displays:

#### AUTOMATIC HANDLE EMERGENCY REMAIN IN EMERGENCY FOR 60 SECONDS

- 4. Verify that DP Remote and last car go into emergency.
- 5. Ensure DP Remote **BP** is **0 psi** and **Flow** is **Out.**
- 6. After 60 seconds the crew message displays:

#### DISTRIBUTED POWER EMERGENCY EMERGENCY STILL PRESENT

• Remain in EMER (Emergency) position for another 30 seconds or until crew message displays:

#### DISTRIBUTED POWER EMERGENCY TO RECOVER AIR BRAKE, GO TO RELEASE

- 7. Place Automatic Brake handle to REL (Release).
  - ER and BP pressures return to 90 psi.
- 8. Open the angle cock ahead of the car coupled to the DP Remote consist.
- 9. Open angle cock between DP Lead consist and first car.
  - Penalty brake will recover.
  - Flow will change from OUT to a numeric value once a rise of at least 3 psi in Brake Pipe pressure is detected within 3 minutes.



### **DP En Route Requirements**

The following chart outlines the process and procedures that must be completed or used during DP operations en route.



**DP EN ROUTE REQUIREMENTS** 

#### **GE - Train Check Procedure**

Train may proceed while the test is being performed.

 Make a **10 psi or greater** brake pipe reduction with Automatic Brake. Train Check key will appear following the reduction.



2.	Press	Distributed Power	on Gauges screen.
3.	Press	DP Main Menu	
4.	Press	SYSTEM	
5.	Press	TRAIN CHECK	
6.	Press	EXECUTE	
	• Cre	w message	displays:
D	P: TRAII	N CHECK: C	UTTING OUT BRAKE VALVES / WA

Followed by:

DP: TRAIN CHECK: RELEASE AUTOMATIC BRAKE WHEN READY

#### 7. Place Automatic Brake handle to REL (Release).

Crew message displays:

**DP: TRAIN CHECK: IN PROGRESS** 

• If Train Check is successful crew message displays:

DP: TRAIN CHECK: OK

8. Press **EXIT** twice to return to the Gauges screen.

**NOTE:** If Train Check fails after 2 successive attempts, immediately inspect trainline for continuity.



GE - Set Out Procedure (Switching En Route)

Uncoupling

**NOTE:** The Set Out key will only appear if the locomotive is stopped and the **Independent Brake** is fully applied.

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. Place Automatic Brake handle to FULL (if needed).
- 3. On the Distributed Power Operation screen, press Remote Menu to access the Set Out key.
- 4. When linked to multiple Remotes:
  - Select the Remote(s) to be placed in S/O (Set-Out) mode using
- 5. Press Set Out
- 6. Press EXECUTE
- 7. Verify DP Remote mode indicates **S/O** and **Flow** indicates **OUT**.

ID	A-2221	B-2220			
Throttle	Idle	Idle			
Load TE	0 K	0 K			
Consist TE	1:1 0K				
BP	64	64			
Flow	0	Out	Stop 7		
Remote		s/o	-Step /		

#### Recoupling

- 1. Place **Independent Brake** handle to **FULL APPLICATION** (if needed).
- 2. On the Distributed Power Operation screen,

press Remote to access the Normal key.

- 3. When linked to multiple Remotes:
  - Select the Remote(s) to be placed in Norm (Normal) mode using
- 4. Press Normal
- 5. Press EXECUTE
- 6. Verify DP Remote mode indicates Norm (Normal).
- 7. Slowly open angle cocks and allow brake pipe to recharge.
- 8. Verify Flow indicates a numeric value.

## **GE** Locomotives **DP EN ROUTE REQUIREMENTS**

#### **GE - Emergency Recovery Procedure**

If an emergency brake application occurs on a DP train, the DP Remote(s) must immediately be placed in S/O (Set Out) mode after the train is stopped.

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. On the Distributed Power Operation screen, press Remote to access the Set Out key. Menu
- When linked to multiple Remotes: 3.
  - Select the Remote(s) to be placed in S/O (Set Out)
    - mode using
- 4. Press Set Out
- 5. Press EXECUTE
- 6. Verify DP Remote mode indicates S/O (Set Out) and Flow indicates OUT.

ID	A-2221	B-2220	
Throttle	Idle	Idle	
Load TE	0 K	0 K	
Consist TE	1:1 0K		
BP	0	0	
Flow	0	Out	Stop 6
Remote		s/o	-Step 0

7. Recover the emergency brake.

An increase in Brake Pipe (BP) pressure on the DP Remote (as seen on the DP Operation screen) confirms continuity between the DP Lead and the DP Remote. An increase in BP pressure on the HOT/IDU confirms continuity between the DP Remote and the tail end of the train.

NOTE: During this time, the DP Remote(s) will continue to display the PCS icon.

If BP pressure fails to increase on the DP Remote, it must remain in **S/O** (Set Out) mode until continuity is re-established.

When continuity has been re-established and the BP pressure begins to increase on the DP Remote, immediately place the Remote to Normal mode.

1. On the Distributed Power Operation screen,

```
Remote
press
          Menu
```



2.

- When linked to multiple Remotes:
- Select the Remote(s) to be placed in Norm (Normal)

to access the Normal key.

- mode using Press Normal
- 3.
- 4. Press EXECUTE
- 5. Verify DP Remote mode indicates Norm (Normal).
- Verify Flow indicates a numeric value. 6.



#### **GE - Independent Control Procedure**

- 1. Ensure DP system mode is set to Run.
- 2. Press Control Menu (if visible).
- 3. Press Move to Back

**NOTE**: When linked to multiple remotes and the DP Remote consist is placed in the Back group, all DP Remote consist(s) to the rear are automatically placed in the Back group.

4. Verify that the divider line appears between the "A" Lead and the "B" DP Remote.

ID	A-2221	B-2220	
Throttle	N1	N1	
Load TE	4 K	4 K	
Consist TE	1:1 0K	• Ste	ep 4
BP	90	90	
Flow	0	0	
Remote		Norm	



**NOTE**: The DP system will not allow the DP Remote to brake if the DP Lead is in traction.



The Locomotive Engineer must pay particular attention to the train profile page(s) of the train journal to familiarize themselves with the marshalling of their train, in particular the number and location of any cars equipped with EOC (end of car cushioning).

The Locomotive Engineer must know the location of the DP Remote consist in the train for effective use of the DMD (distance measuring device) while operating in independent control. The location of the DP Remote consist is found on the train journal.

The throttle and dynamic brake settings must be constantly monitored on the DP Lead consist and the DP Remote consist. The following guidelines must be adhered to:

- a) To keep the train slack bunched, the DP Remote consist should remain in a higher throttle position than the DP Lead consist except when bunching slack only from the DP Lead consist while in Dynamic Brake.
- b) The DP Lead throttle setting must not be more than 5 positions higher than the DP Remote's throttle setting. For example: If DP Lead throttle set at 8, the DP Remote throttle must be set at 3 or higher.

8. Press Move to Front to return to synchronous operation.



#### **GE - Operation During a DP COMM LOSS**

During a COMM LOSS, **COMM** appears above the Remote ID on Distributed Power Operation screen. If sustained, **COMM** is replaced by **COMM** and 2 audible beeps sound.

ID	A-2221	COMM ← B-2220	
Throttle	N1	N1	

The DP Remote operating status displayed on the DP Operation screen will remain 'frozen' until DP communication is restored.

#### COMM LOSS IDLE DOWN

If it becomes necessary to initiate a COMM LOSS IDLE DOWN of a DP Remote consist, stop the train with a straight-away FULL SERVICE brake application. The train may then be moved for a maximum of 2 miles (in a state of comm loss) in an attempt to restore DP communications.

Performing a Comm Loss Idle Down does not nullify the dynamic brake on the DP Remote.

To nullify the dynamic brake on the DP Remote:

- 1. Stop the train and then initiate an emergency brake application.
- 2. Recover the air brakes at the DP Lead, as follows:
  - a) Allow the emergency / penalty timer to expire;
  - b) Place the automatic brake handle in the Release position.

When COMM is restored, the following information will be displayed on the DP Operations screen:

- Throttle on DP Remote indicates Idle.
- DP Remote Flow indicates **Out**.
- DP Remote mode indicates Isol (Isolate).

ID	A-2221	B-2220	
Throttle	N1	Idle	
Load TE	0 K	0 K	
Consist TE	1:1 0K		
BP	90	90	
Flow	0	Out	
Remote			

Once COMM is restored, return the DP Remote to Normal mode:

1. From the Distributed Power Operation screen:

<ul> <li>Press</li> <li>REMOTE MENU</li> </ul>
--

- Press NORMAL
- Press EXECUTE
- The DP Remote mode changes from Isol (Isolate) to Norm (Normal).
- 2. Make a sufficient brake pipe reduction so that when released, a positive release will occur.
  - A **3** psi rise in DP Remote BP pressure within 3 minutes will result in the cut in of the DP Remote brake valve and its **Flow** changing from **OUT** to a **numeric value**.



**GE - Securing DP Train Left Unattended** 

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. Make a **FULL SERVICE** brake application as per GOI requirements.
  - Allow brake pipe reduction to complete (equalize).
- 3. Set DP Mode to IDLE:

a) Press	Distributed Power	on the Gauges screen.
b) Press	DP Main Menu	
c) Press	MODE	
d) Press	IDLE	
e) Press	EXIT	to return to Gauges screen

- On the Distributed Power Operation screen verify the DP Mode status indicates Idle and the DP Remote BC pressure is 72 psi or greater.
- 5. Secure train as per GOI and other applicable instructions.

**DP EN ROUTE REQUIREMENTS** 

**GE - Removing or Adding DP Remote Consist** 

Removing DP Remote Consist

**NOTE:** The Set Out key will only appear if the locomotive is stopped and the **Independent Brake** is fully applied.

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. Place Automatic Brake handle to FULL (if needed).
- 3. On the Distributed Power Operation screen, press Remote Menu to access the Set Out key.
- 4. When linked to multiple Remotes:
  - Select the Remote(s) to be placed in S/O (Set-Out)
     mode using
- 5. Press Set Out
- 6. Press **EXECUTE**
- 7. Verify DP Remote mode indicates **S/O** and **Flow** indicates **OUT**.
- 8. Remove (Set Out) DP Remote consist.
- 9. End DP operation on the DP Lead by following procedure on page 55, *End DP Lead Unit*.
- 10. Re-link the DP Lead to all DP Remote consists remaining in the train by following procedure on page 21, DP Lead Unit Set Up.
- 11. Perform a DP Brake Pipe Test by following procedure on page 22, *DP Brake Pipe Test*.
- 12. End DP operation on each DP Remote consist removed from the train by following procedure on page 56, *End DP Remote Unit*.

**NOTE:** The Locomotive Engineer is responsible for ending DP operation on all DP Remote consists removed from the train unless relieved of this responsibility.

Adding DP Remote Consist

- 1. End DP operation on the DP Lead by following procedure on page 55, *End DP Lead Unit*.
- 2. Set up and link each DP Remote consist(s) to be added to the train by following procedure on page 20, DP Remote Unit Set Up.
- 3. Link the DP Lead to each DP Remote consist to be included in the train by following procedure on page 21, DP Lead Unit Set Up.
- 4. Perform a Direction Agreement Test on each DP Remote consist added by following procedure on page 9, Direction Agreement Test-Multiple Remote Consists.
- 5. Perform a DP Brake Pipe Test by following procedure on page 22, *DP Brake Pipe Test*.



- 7. Press Exit
- to return to the Gauges screen.

**NOTE:** If Train Check fails after 2 successive attempts, immediately inspect trainline for continuity.

# EMD Locomotives

#### EMD - Set Out Procedure (Switching En Route)

Uncoupling

4.

**NOTE:** The Set Out key will only appear if the locomotive is stopped and the **Independent Brake** is fully applied.

- 1. Place **Independent Brake** handle to **FULL APPLICATION**.
- 2. Place Automatic Brake handle to FULL (if needed).
- 3. On the Distributed Power Operation screen, press **REMOTE** to access the Set Out key.
  - When linked to multiple Remotes:
- 5. Press SET OUT
- 6. Press **YES** when following prompt appears:

Set Out: Execute Command?

7. Verify DP Remote mode indicates **SET OUT** and **Flow** indicates **OUT**.

	FRONT		BACK
RUN	A-8821	B-8814	
THROTTLE	IDLE	IDLE	
LOAD	0 A	0 A	
CONSIST	0:1 0K	N/A	
BRAKE PIPE	64	64	
FLOW	0	OUT	Step 7
REMOTE		SET OUT	

Recoupling

- 1. Place **Independent Brake** handle to **FULL APPLICATION** (if needed).
- 2. On the Distributed Power Operation screen,

press **REMOTE** to access the Normal key.

- 3. When linked to multiple Remotes:

  - Each remote must be placed in NORM (Normal) mode.
- 4. Press NORMAL

5.

Press **YES** when following prompt appears:

Normal: Execute Command?

- 6. Verify DP Remote mode indicates **NORM** (Normal).
- 7. Slowly open angle cocks and allow brake pipe to recharge.
- 8. Verify Flow indicates a numeric value.



#### **EMD - Emergency Recovery Procedure**

If an emergency brake application occurs on a DP train, the DP Remote(s) must immediately be placed in Set Out mode after the train is stopped.

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. On the Distributed Power Operation screen, press REMOTE to access the Set Out key. MENU

#### When linked to multiple Remotes: 3.

Select the Remote(s) to be placed in Set Out

mode using 4

- 4. Press SET OUT
- 5. Press YES
- 6. Verify DP Remote mode indicates SET OUT and Flow indicates OUT.

	FRONT		BACK
RUN	A-8821	B-8814	
THROTTLE	IDLE	IDLE	
LOAD	0 A	0 A	
CONSIST	0:1 0K	N/A	
BRAKE PIPE	0	0	
FLOW	0	OUT	Step 6
REMOTE		SET OUT	J

7. Recover the emergency brake.

An increase in Brake Pipe (BP) pressure on the DP Remote (as seen on the DP Operation screen) confirms continuity between the DP Lead and the DP Remote. An increase in BP pressure on the HOT/IDU confirms continuity between the DP Remote and the tail end of the train.

NOTE: During this time, the DP Remote(s) will continue to display the PCS icon.

If BP pressure fails to increase on the DP Remote, it must remain in Set Out mode until continuity is re-established.

When continuity has been re-established and the BP pressure begins to increase on the DP Remote, immediately place the Remote to Normal mode.

1. On the Distributed Power Operation screen,

ss	REMOTE
55	MENU

pre

to access the Normal key.

2. When linked to multiple Remotes:

Select the Remote(s) to be placed in NORMAL

mode using		$\leftarrow$	$\rightarrow$
Press	NORMAL		
Press	YES		

- Verify DP Remote mode indicates NORMAL. 5.
- 6. Verify Flow indicates a numeric value.

3.

4.

**DP EN ROUTE REQUIREMENTS** 

FIV/I

#### **EMD - Independent Control Procedure**

- 1. Ensure DP system mode is set to Run.
- 2. Press Main Menu (if visible).
- 3. Press Move to Back

**NOTE**: When linked to multiple remotes and the DP Remote consist is placed in the Back group, all DP Remote consist(s) to the rear are automatically placed in the Back group.

 Verify that the divider line appears between the "A" Lead and the "B" DP Remote.



6. Press **YES** when following prompt appears:

TRACTION: Execute Command?

**NOTE**: The DP system will not allow the DP Remote to brake if the DP Lead is in traction.

7. Press More Traction or Brake as required.

The Locomotive Engineer must pay particular attention to the train profile page(s) of the train journal to familiarize themselves with the marshalling of their train, in particular the number and location of any cars equipped with EOC (end of car cushioning).

The Locomotive Engineer must know the location of the DP Remote consist in the train for effective use of the DMD (distance measuring device) while operating in independent control. The location of the DP Remote consist is found on the train journal.

The throttle and dynamic brake settings must be constantly monitored on the DP Lead consist and the DP Remote consist. The following guidelines must be adhered to:

- a) To keep the train slack bunched, the DP Remote consist should remain in a higher throttle position than the DP Lead consist except when bunching slack only from the DP Lead consist while in Dynamic Brake.
- b) The DP Lead throttle setting must not be more than 5 positions higher than the DP Remote's throttle setting. For example: If DP Lead throttle set at 8, the DP Remote throttle must be set at 3 or higher.
- 8. Press Front to return to synchronous operation.



#### EMD - Operation During a DP COMM LOSS

During a COMM LOSS, **COMM** appears above the Remote ID on Distributed Power Operation screen. If sustained, **COMM** is replaced by **COMM** and 2 audible beeps sound.

RUN	FRONT A-8821	COMM ← B-8814	BACK
THROTTLE	N1	N1	

The DP Remote operating status displayed on the DP Operation screen will remain 'frozen' until DP communication is restored.

#### COMM LOSS IDLE DOWN

If it becomes necessary to initiate a COMM LOSS IDLE DOWN of a DP Remote consist, stop the train with a straight-away FULL SERVICE brake application. The train may then be moved for a maximum of 2 miles (in a state of comm loss) in an attempt to restore DP communications.

Performing a Comm Loss Idle Down does not nullify the dynamic brake on the DP Remote.

To nullify the dynamic brake on the DP Remote:

- 1. Stop the train and then initiate an emergency brake application.
- 2. Recover the air brakes at the DP Lead, as follows:
  - a) Allow the emergency / penalty timer to expire;
  - b) Place the automatic brake handle in the Release position.

When COMM is restored, the following information will be displayed on the DP Operations screen:

- Throttle on DP Remote indicates IDLE.
- DP Remote Flow indicates OUT.
- DP Remote mode indicates ISOLATE.

	FRONT		BACK
RUN	A-8821	B-8814	
THROTTLE	N1	IDLE 🔶	
LOAD	100 A	0 A 0	
CONSIST	1:1 OK	N/A	
BRAKE PIPE	90	90	
FLOW	0	OUT 🔶	
REMOTE		ISOLATE -	

Once COMM is restored, return the DP Remote to Normal mode:

3. From the Distributed Power Operation screen:

•	Press	REMOTE MENU
•	Press	NORMAL
•	Press	YES

- The DP Remote mode changes from ISOLATE to NORMAL.
- 4. Make a sufficient brake pipe reduction so that when released, a positive release will occur.
  - A 3 psi rise in DP Remote BP pressure within 3 minutes will result in the cut in of the DP Remote brake valve and its Flow changing from OUT to a numeric value.

# EMD Locomotives DP EN ROUTE REQUIREMENTS EMD

#### **EMD - Securing DP Train Left Unattended**

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. Make a **FULL SERVICE** brake application as per GOI requirements.
  - Allow brake pipe reduction to complete (equalize).
- 3. Set DP Mode to IDLE:



- On the Distributed Power Operation screen verify the DP Mode status indicates IDLE and the DP Remote BC pressure is 72 psi or greater.
- 5. Secure train as per GOI and other applicable instructions.



EMD - Removing or Adding DP Remote Consist

Removing DP Remote Consist

**NOTE:** The Set Out key will only appear if the locomotive is stopped and the **Independent Brake** is fully applied.

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. Place **Automatic Brake** handle to **FULL** (if needed).
- 3. On the Distributed Power Operation screen, press **REMOTE** to access the Set Out key.
- 4. When linked to multiple Remotes:
  - Select the Remote(s) to be placed in **SET OUT** Mode



- 5. Press SET OUT
- 6. Press **YES** when following prompt appears:

#### Set Out: Execute Command?

- 7. Verify DP Remote mode indicates **SET OUT** and **Flow** indicates **OUT**.
- 8. Remove (Set Out) DP Remote consist.
- 9. End DP operation on the DP Lead by following procedure on page 57, *End DP Lead Unit*.
- 10. Re-link the DP Lead to all DP Remote consists remaining in the train by following procedure on page 24, DP Lead Unit Set Up.
- 11. Perform a DP Brake Pipe Test by following procedure on page 25, *DP Brake Pipe Test*.
- End DP operation on each DP Remote consist removed from the train by following procedure on page 58, End DP Remote Unit.

**NOTE:** The Locomotive Engineer is responsible for ending DP operation on all DP Remote consists removed from the train unless relieved of this responsibility.

#### Adding DP Remote Consist

- 1. End DP operation on the DP Lead by following procedure on page 57, *End DP Lead Unit*.
- 2. Set up and link each DP Remote consist(s) to be added to the train by following procedure on page 23, DP Remote Unit Set Up.
- 3. Link the DP Lead to all DP Remote consists to be included in the train by following procedure on page 24, *DP Lead Unit Set Up*.
- 4. Perform a Direction Agreement Test on each DP Remote consist added by following procedure on page 13, *Direction Agreement Test-Multiple Remote Consists*.
- 5. Perform a DP Brake Pipe Test by following procedure on page 25, *DP Brake Pipe Test*.

#### **OIM - Train Check Procedure**

Train may proceed while the test is being performed.

 Make a **10 psi or greater** brake pipe reduction with Automatic Brake. Train Check key will appear following the reduction.



**NOTE:** If Train Check fails after 2 successive attempts, immediately inspect trainline for continuity.



OIM - Set Out Procedure (Switching En Route)

Uncoupling

**NOTE:** The Set Out key will only appear if the locomotive is stopped and the **Independent Brake** handle is fully applied.

- Place Independent Brake handle to FULL APPLICATION.
- 2. Place Automatic Brake handle to FULL (if needed).
- On the Distributed Power Operation screen, press
   REMOTE MENU
   to access the Set Out key.
- 4. When linked to multiple Remotes:
  - Select the Remote(s) to be placed in S/O (Set-Out)
     mode using

5.	Press	SET OUT	
6.	Press	EXEC	

7. Verify DP Remote mode indicates **S/O** and **Flow** indicates **OUT**.

2	A-2538	B-2221
RUN		
THROTTLE	IDLE	IDLE
LOAD	0 A	0 K
BP	64	64
FLOW	0	OUT Step 7
REMOTE		s/o

#### Recoupling

press

4.

5.

- Place Independent Brake handle to FULL APPLICATION (if needed).
- 2. On the Distribution Power Operation screen,

REMOTE MENU to access the Normal key.

- 3. When linked to multiple Remotes:
  - Select the Remote(s) to be placed in NORM (Normal)



- 6. Verify DP Remote mode indicates NORM (Normal).
- 7. Slowly open angle cocks and allow brake pipe to recharge.
- 8. Verify **Flow** indicates a **numeric value**.

#### **OIM - Emergency Recovery Procedure**

If an emergency brake application occurs on a DP train, the DP Remote(s) must immediately be placed in **S/O** (Set Out) mode after the train is stopped.

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. On the Distributed Power Operation screen, press REMOTE to access the Set Out key.
- 3. When linked to multiple Remotes:
  - Select the Remote(s) to be placed in S/O (Set Out)

mode using

- 4. Press SET OUT 5. Press EXEC
- 6. Verify DP Remote mode indicates **S/O** (Set Out) and **Flow** indicates **OUT**.

	A-2538	B-2221
RUN		
THROTTLE	IDLE	IDLE
LOAD	0 A	0 K
BP	0	0
FLOW	0	OUT Step 6
REMOTE		s/o 🕻

7. Recover the emergency brake.

An increase in Brake Pipe (BP) pressure on the DP Remote (as seen on the DP Operation screen) confirms continuity between the DP Lead and the DP Remote. An increase in BP pressure on the HOT/IDU confirms continuity between the DP Remote and the tail end of the train.

**NOTE:** During this time, the DP Remote(s) will continue to display the PCS icon.

If BP pressure fails to increase on the DP Remote, it must remain in **S/O** (Set Out) mode until continuity is re-established.

When continuity has been re-established and the BP pressure begins to increase on the DP Remote, immediately place the Remote to Normal mode.

1. On the Distributed Power Operation screen,



- 5. Verify DP Remote mode indicates **Norm** (Normal).
- 6. Verify **Flow** indicates a **numeric value**.

## OIM Equipped Locomotives DP EN ROUTE REQUIREMENTS

#### **OIM - Independent Control Procedure**

- 1. Ensure DP system mode is set to Run.
- 2. Press MAIN MENU (if visible).
- 3. Press BACK

**NOTE**: When linked to multiple remotes and the DP Remote consist is placed in the Back group, all DP Remote consist(s) to the rear are automatically placed in the Back group.

4. Verify that the divider line appears between the "A" Lead and the "B" DP Remote.

RUN	A−2538 — Step1	B-2221
THROTTLE LOAD BP FLOW	N1 100 A 90 0	N1
REMOTE		NORM



**NOTE**: The DP system will not allow the DP Remote to brake if the DP Lead is in traction.



The Locomotive Engineer must pay particular attention to the train profile page(s) of the train journal to familiarize themselves with the marshalling of their train, in particular the number and location of any cars equipped with EOC (end of car cushioning).

The Locomotive Engineer must know the location of the DP Remote consist in the train for effective use of the DMD (distance measuring device) while operating in independent control. The location of the DP Remote consist is found on the train journal.

The throttle and dynamic brake settings must be constantly monitored on the DP Lead consist and the DP Remote consist. The following guidelines must be adhered to:

- a) To keep the train slack bunched, the DP Remote consist should remain in a higher throttle position than the DP Lead consist except when bunching slack only from the DP Lead consist while in Dynamic Brake.
- b) The DP Lead throttle setting must not be more than 5 positions higher than the DP Remote's throttle setting. For example: If DP Lead throttle set at 8, the DP Remote throttle must be set at 3 or higher.
- 8. Press **FRONT** to return to synchronous operation.

#### **OIM - Operation During a DP COMM LOSS**

During a COMM LOSS, **COMM** appears above the Remote ID on Distributed Power Operation screen. If sustained, **COMM** is replaced by **COMM** and 2 audible beeps sound.

	A-2538	B-2280 COMM	
THROTTLE	N1	N1	

The DP Remote operating status displayed on the DP Operation screen will remain 'frozen' until DP communication is restored.

#### COMM LOSS IDLE DOWN

If it becomes necessary to initiate a COMM LOSS IDLE DOWN of a DP Remote consist, stop the train with a straight-away FULL SERVICE brake application. The train may then be moved for a maximum of 2 miles (in a state of comm loss) in an attempt to restore DP communications.

Performing a Comm Loss Idle Down does not nullify the dynamic brake on the DP Remote.

To nullify the dynamic brake on the DP Remote:

- 1. Stop the train and then initiate an emergency brake application.
- 2. Recover the air brakes at the DP Lead, as follows:
  - a) Allow the emergency / penalty timer to expire;
  - b) Place the automatic brake handle in the Release position.

When COMM is restored, the following information will be displayed on the DP Operations screen:

- Throttle on DP Remote indicates IDLE.
- DP Remote Flow indicates **OUT**.
- DP Remote mode indicates ISO (Isolate).

RUN	A-2538	B-2221	
THROTTLE	N1		
LOAD	100 A	0 K	
BP	90	90	
FLOW	0	OUT 🔶	
REMOTE		ISOL ←	

Once COMM is restored, return the DP Remote to Normal mode:

3. From the Distributed Power Operation screen:



- The DP Remote mode changes from **ISO** (Isolate) to **NORM** (Normal).
- 4. Make a sufficient brake pipe reduction so that when released, a positive release will occur.
  - A 3 psi rise in DP Remote BP pressure within 3 minutes will result in the cut in of the DP Remote brake valve and its Flow changing from OUT to a numeric value.



**OIM - Securing DP Train Left Unattended** 

- 1. Place Independent Brake handle to FULL APPLICATION.
- Make a FULL SERVICE brake application as per GOI requirements.
  - Allow brake pipe reduction to complete (equalize).
- 3. Set DP Mode to IDLE:



- On the Distributed Power Operation screen verify the DP Mode status indicates Idle and the DP Remote BC pressure is 72 psi or greater.
- 5. Secure train as per GOI and other applicable instructions.

#### **OIM - Removing or Adding DP Remote Consist**

#### Removing DP Remote Consist

**NOTE:** The Set Out key will only appear if the locomotive is stopped and the **Independent Brake** is fully applied.

- 1. Place Independent Brake handle to FULL APPLICATION.
- 2. Place Automatic Brake handle to FULL (if needed).
- 3. On the Distributed Power Operation screen, press **REMOTE** MENU
  to access the Set Out key.
- 4. When linked to multiple Remotes:
  - Select the Remote(s) to be placed in S/O (Set-Out) mode using
- 5. Press SE
- 6. Press EXEC
- 7. Verify DP Remote mode indicates **S/O** and **Flow** indicates **OUT**.
- 8. Remove (Set Out) DP Remote consist.
- 9. End DP operation on the DP Lead by following procedure on page 59, *End DP Lead Unit*.
- 10. Re-link the DP Lead to all DP Remote consists remaining in the train by following procedure on page 27, DP Lead Unit Set Up.
- 11. Perform a DP Brake Pipe Test by following procedure on page 28, *DP Brake Pipe Test*.
- 12. End DP operation on each DP Remote consist removed from the train by following procedure on page 60, *End DP Remote Unit*.

**NOTE:** The Locomotive Engineer is responsible for ending DP operation on all DP Remote consists removed from the train unless relieved of this responsibility.

Adding DP Remote Consist

- 1. End DP operation on the DP Lead by following procedure on page 59, *End DP Lead Unit*.
- 2. Set up and link each DP Remote consist(s) to be added to the train by following procedure on page 26, *DP Remote Unit Set Up*.
- 3. Link the DP Lead to all DP Remote consists to be included in the train by following procedure on page 27, DP Lead Unit Set Up.
- 4. Perform a Direction Agreement Test on each DP Remote consist added by following procedure on page 17, *Direction Agreement Test-Multiple Remote Consists*.
- 5. Perform a DP Brake Pipe Test by following procedure on page 28, *DP Brake Pipe Test*.



### **Terminating Distributed Power Operations**

The following chart outlines the procedures that must be completed when terminating DP operations.





DISTRIBUTED POWER LINK / UNLINK PENALTY REMAIN IN SUPPRESSION FOR 8 SECONDS

7. When crew message disappears, place Automatic Brake handle to REL (Release).

**NOTE:** Should an emergency brake application occur at this point, follow the crew message prompts to recover the emergency brake.



- 4. Press END
- H. PIESS DIST PWR
- 5. Press EXECUTE
- 6. Set air brake for conventional Lead operation:

a) Press	Air Brake
b) Press	Change Set Up
c) Press	Air Brake Mode

- Verify Auto Brk status indicator changes from Cut Out to Freight.
- d) Press Save Set Up
- e) Confirm new set up by pressing

again.

Save

Set Up



6. When crew message disappears, place Automatic Brake handle to REL (Release).

**NOTE:** Should an emergency brake application occur at this point, follow the crew message prompts to recover the emergency brake.

## EMD Locomotives TERMINATING DP OPERATIONS

EMD - End DP Remote Unit

1. Place Independent Brake handle to FULL APPLICATION.

Distributed

Power

- 2. From the Gauges screen, press
- 3. Press END DIST PWR
- 4. Press EXECUTE
- 5. Set air brake for conventional Lead operation:



- Verify AIR BRAKE SETUP changes from
  - LEAD CUT OUT to LEAD CUT IN.



DISTRIBUTED POWER LINK / UNLINK PENALTY REMAIN IN SUPPRESSION FOR 8 SECONDS

7. When crew message disappears, place Automatic Brake handle to REL (Release).

**NOTE:** Should an emergency brake application occur at this point, follow the crew message prompts to recover the emergency brake.



OIM - End DP Remote Unit

1. Place Independent Brake handle to FULL APPLICATION.

DIST

- 2. From the Gauges screen, press
- 3. Press MAIN MENU
- 4 Dress END
- 4. Press END DP
- 5. Press
- 6. Set air brake for conventional Lead operation:

a) Press	EAB SETUP
b) Press	CUT IN CUT OUT
c) Press	ACCEPT NEW

EXEC

• Verify AUTO BRK status indicator changes from CUT OUT to FREIGHT.

