



## Typical Wiring Diagram When Using a Detroit Diesel DDEC Governor, and a Pow-R-Con™.

### DYNA II Pow-R-Con™

The DYNA II Pow-R-Con can be used with DDEC III/IV Engine Controls to provide automatic synchronizing, load sharing, soft loading/unloading, and load management for generator set systems. The Pow-R-Con eliminates the risk of operator error inherent with manual paralleling systems.

Figure 1 illustrates the wiring of two generator sets having DDEC III Engine Controls and Pow-R-Cons. Additional engine generator sets can be paralleled by wiring them at the points designated, PARALLELING LINES TO OTHER SYSTEMS.

#### CAUTION

It is recommended that an independent overspeed device be incorporated in every engine control system.

#### Notes

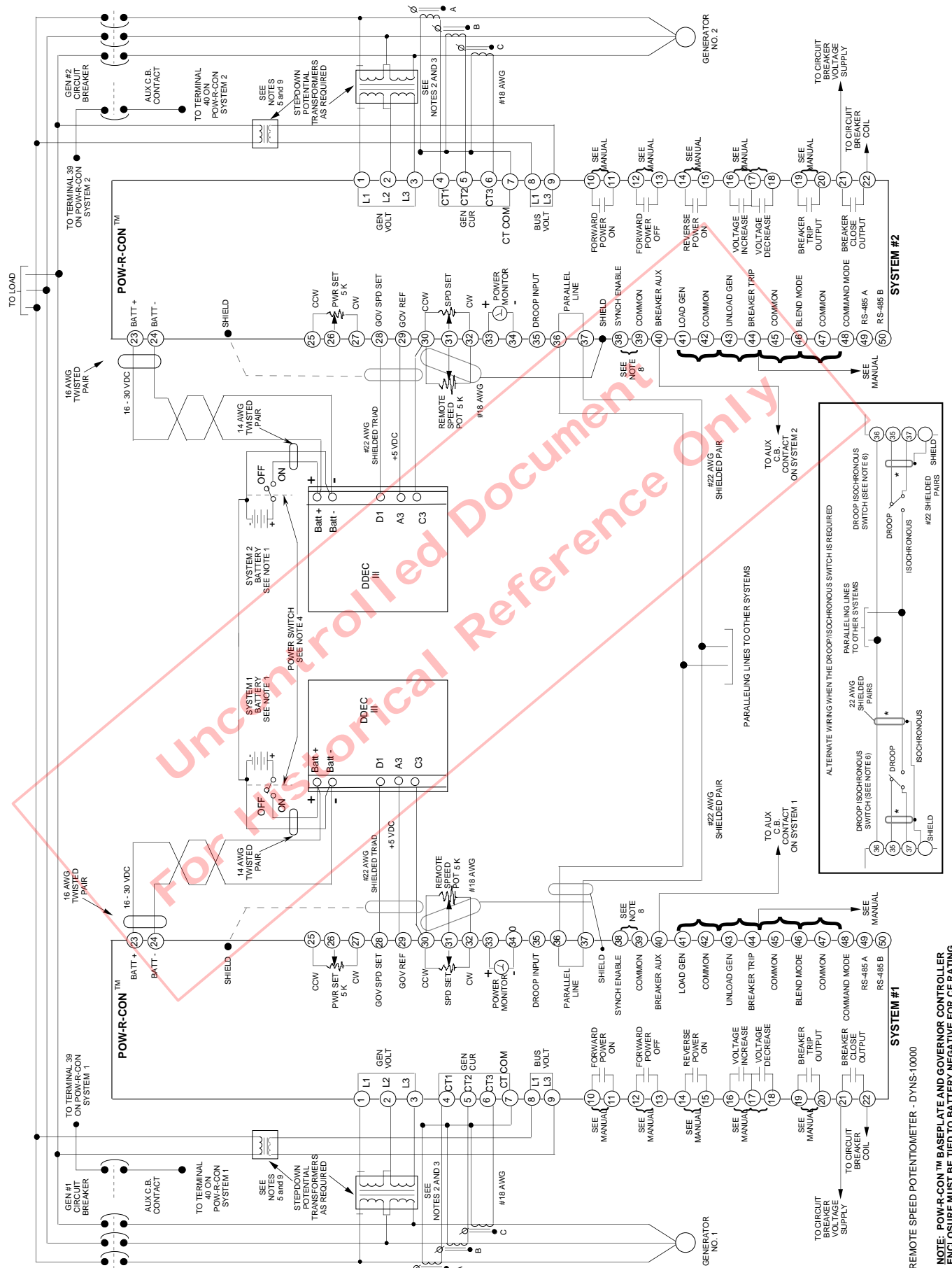
1. If more than one engine is started using the same battery supply, use separate battery supply for each system. Twist power leads and use shield cables as shown.
2. Select current transformers to provide 5.0 amps at full rated load. Current transformers require 1.25 VA/PHASE at 5.0 amps.
3. Observe current transformer polarity markings when connecting.
4. Power switch current rating: 10 amps.
5. Phasing of voltage potential to Terminals 1, 2 and 3 is necessary to keep each signal in its correct phase relationship. The Pow-R-Con can be calibrated to accept 120 to 480Vac. If step-down transformers are used, the Pow-R-Con will require 1 Va/phase (nominal).
6. Droop/Isochronous switch is not required if units are always operated in the isochronous mode.
7. Pow-R-Con™ models (also see DYNA 259 or DYNA 265)  
DYN2-94025 (module with display and programming panel)  
DYN2-94026 (module without display and programming panel)  
DYNK-55100 (display and programming panel)  
DYNA-29900 (includes both DYN2-94026 and DYNK-55100)
8. Closing terminal 38 (synch enable) to terminal 39 (common) activates the Pow-R-Con's synchronizer. The phase and frequency of the incoming generator are controlled and a contact is closed to drive a circuit breaker. Once the circuit breaker is closed, the contact between 38 and 39 should be opened.
9. Phasing of voltage potential to the terminals 8 and 9 is necessary to keep each signal in its correct phase relationship. The Pow-R-Con can be calibrated to accept 120 to 480 Vac. If step-down transformers are used, the Pow-R-Con will require 1 Va/phase (nominal).
10. Connections to terminals 1, 2, and 3 must be the same voltage potential that is applied to terminals 8 and 9. Applying generator voltage without applying bus voltage may cause the engine to run faster or slower than the desired speed. However, when bus voltage is applied, the Auto-synchronizer will change engine speed to quickly match the generator to the bus frequency.

The following setup procedure must be completed to allow the Pow-R-Con™ to be calibrated to the DDEC system. The DDEC system must also be calibrated to have the VSG Minimum set to 1710 RPM (1425 RPM) and 1890 RPM (1575 RPM) for 60 Hz (50Hz) operation.

### Setup Procedure

1. Wire per Figure 1.
2. Remove the plastic cover of the Pow-R-Con.
3. Set R174 to mid-position and R173 to fully clockwise.
4. Turn on switches 4 and 7, turn off all other switches.
5. Set remote speed potentiometer to 50%.
6. Start engine and use R174 for any fine tuning of rated speed, (counter-clockwise to decrease, clockwise to increase speed).
7. Turn the remote speed potentiometer to the fully counter-clockwise position, (engine speed should decrease slightly).
8. Turn R173 to obtain rated speed minus 3 Hz (i.e.  $60 - 3 \text{ Hz} = 57 \text{ Hz}$ ).  
Counter-clockwise to decrease, clockwise to increase speed.
  - a. If R173 is fully counter-clockwise and engine speed is still above rate minus 3 Hz., turn on switch 5 and turn off switch 4 (leave switch 7 on).  
Return to sep 5.
  - b. If R173 is fully clockwise and engine speed is below rate speed minus 3 Hz., turn on switch 5 and switch 4 (leave switch 7 on).  
Return to step 5.
9. Turn remote speed potentiometer fully clockwise, speed should increase to approximately rates speed plus 3 Hz.
10. R173 (span) and R174 (offset) can be adjusted to best match the remote speed potentiometer to the desired speed range.

**Figure 1. TYPICAL ELECTRICAL SCHEMATIC FOR TWO GENERATORS SETS WITH DETROIT DIESEL DDEC AND POW-R-CON™ CONTROLS.**



REMOTE SPEED POTENTIOMETER - DYN5-10000

**NOTE: POW-R-CON™ BASEPLATE AND GOVERNOR CONTROLLER ENCLOSURE MUST BE TIED TO BATTERY NEGATIVE FOR CE RATING.**

**NOTE**

Barber-Colman believes that all information provided herein is correct and reliable and reserves the right to update at any time. Barber-Colman does not assume any responsibility for its use unless otherwise expressly undertaken.

**CAUTION**

As a safety measure, the engine should be equipped with an independent overspeed shutdown device in the event of failure which may render the governor inoperative.

Uncontrolled Document  
For Historical Reference Only

**Barber-Colman Company**

DYNA Products

1354 Clifford Avenue  
P.O. Box 2940  
Loves Park, IL 61132-2940  
United States of America

Telephone (815) 637-3000  
Facsimile (815) 877-0150  
[www.dynaproducts.com](http://www.dynaproducts.com)

In Europe contact: Barber-Colman GmbH  
Am Neuen Rheinhafen 4, D-67346 Speyer, Germany  
Telephone 06232 29903, Facsimile 06232 299155

In Japan contact: Ranco Japan Ltd.  
Shiozaki Bldg. 7-1, 2-chome, Hirakawa-Cho, Chiyoda-Ku  
Tokyo 102, Japan  
Telephone 3261 4293, Facsimile 3264 4691