



a Siebe company

## Typical Wiring Diagram When Using a DYN1-10004 Series Controller and a DYN2-80100 Series ILS Control

### DYNA II Isochronous Load Sharing Control

The DYNA II Isochronous Load Sharing Control (P/N's DYN2-80100, DYN2-80101, DYN2-80104 and DYN2-80105) can be used with the DYNA governor to provide proportional isochronous load sharing between similar or dissimilar generators. Droop or isochronous load sharing mode can be selected by closing or opening the droop/isochronous switch shown in Figure 1.

Figure 1 illustrates the wiring of two engine generator sets having DYNA governors and DYNA II Isochronous Load Sharing controls. Additional engine generator sets can be paralleled by wiring them at the point designated, **PARALLELING LINES TO OTHER SYSTEMS.**

**— Caution —**

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

### General System Notes

1. Power switch current rating for a +1 or +4 actuator is 10 amperes, and a +6 actuator requires a 25 ampere switch.
2. System battery supply — If more than one engine is started using the same battery supply, use a separate battery supply for the DYNA system.
3. If each generator has a separate power supply, connect the negative of all power supplies together for a common reference.
4. Use shielded and twisted leads as shown.

### Notes For Isochronous Load Sharing Module (Also see F-16892)

5. Select the ILS current transformers to provide 2.5 to 5.0 amperes at full rated load. Current transformers require nominal 12.5 VA/PHASE at 5.0 amperes.
6. Step-down potential transformers require a nominal 6 VA/PHASE for the ILS.
7. Observe current and potential transformer markings when wiring system because it is necessary to keep each signal in its correct phase relationship to each other.
8. Ramp switch and connections to terminal 20 and 21 of ILS are required only on DYN2-80101 & DYN2-80105.
9. Ramp switch may be an oil pressure, water temperature or a manual switch. Closing switch starts the ramping function. Opening the switch during or after ramping is completed returns the engine to idle speed.

10. Standard "ramp time" is adjustable from 0.5 to 10 seconds. This time can be increased by connecting a 180 mfd (25 Vdc) between terminals 13 and 19 on the ILS. Capacitor should be a Sprague Type 137D, GE Type 69F, CDE Type TX67 or equivalent.
11. If the ramp generator function is not being used, set the "idle speed" potentiometer fully clockwise, the "ramp time" potentiometer fully counterclockwise, and it is not necessary to connect power to terminal 21 of ILS.
12. If the "load pulse" function is not being used, set the "load pulse" potentiometer fully counterclockwise.
13. Droop/isochronous switch is not required if the system is always operated in the isochronous mode.
14. When neither terminal 17 nor 18 have any external connections, jumper terminal 15 to terminal 18.

\* Shielded Cable — should be purchased from Barber-Colman or customer should purchase a cable with a wrapped mylar supported aluminum foil shield with a drain wire.

Table of Wire Sizes	
Size — AWG	Nominal MM <sup>2</sup>
10	6
12	4
14	2.5
18	1.5
22	1.0

# Typical Wiring Diagram When Using a DYN1-10004 Series Controller and a DYN2-80100 Series ILS Control

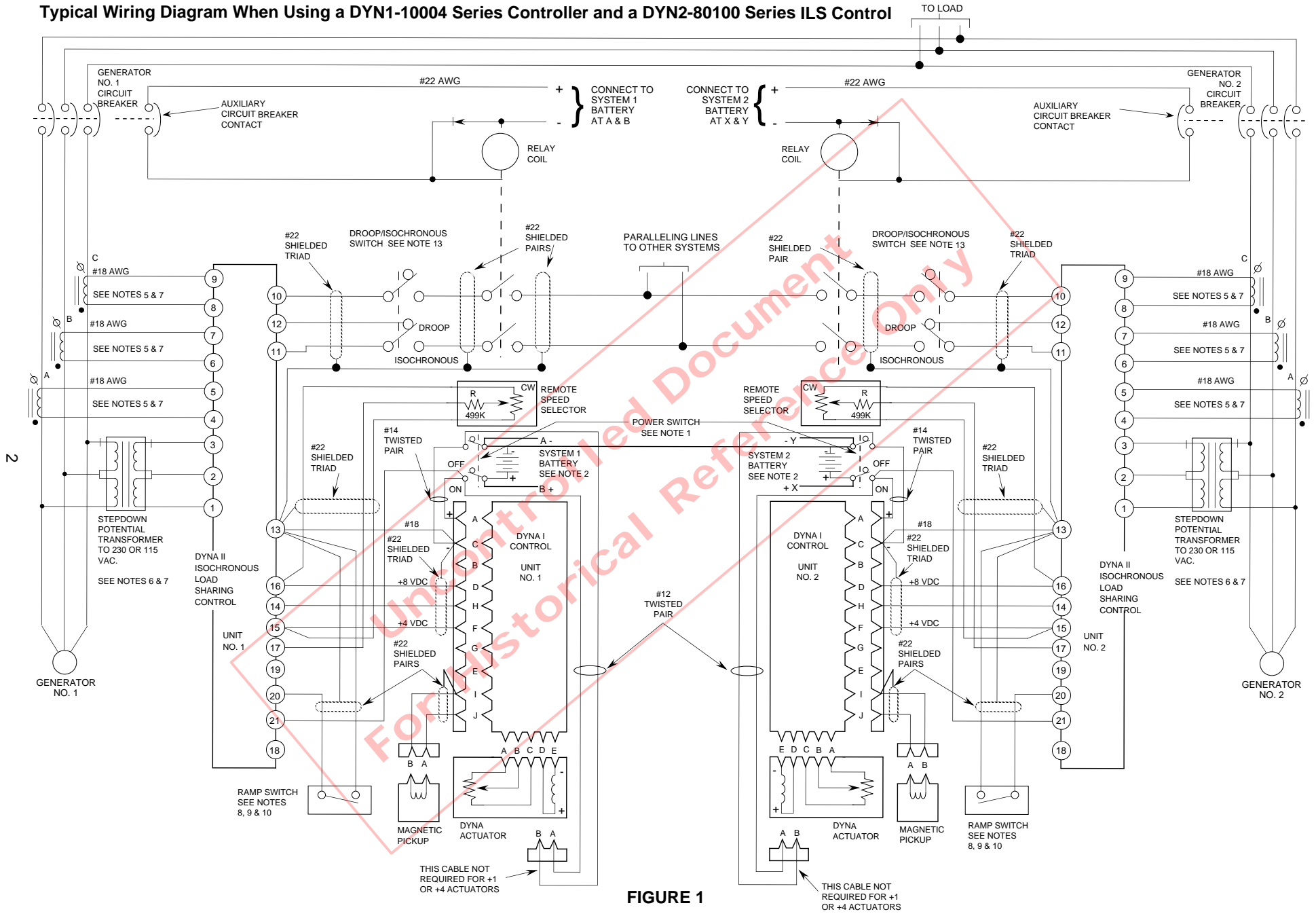


FIGURE 1

# Typical Wiring Diagram When Using a DYN1-10004 Series Controller, a DYN2-80100 Series ILS Control and a DYN2-90200 Auto-Synchronizer

## DYNA II Auto-Synchronizer

The DYNA II Auto Synchronizer (P/N DYN2-90200) can be used with the DYNA I governor and DYNA II Isochronous Load Sharing Control to automatically synchronize one generator with another or with a bus. The Auto-Synchronizer eliminates the risk of operator error inherent with manual synchronizing.

Figure 2 illustrates the wiring of two engine generator sets having DYNA I governors, DYNA II Isochronous Load Sharing Controls and DYNA II Auto-Synchronizers. Additional engine generator sets can be paralleled by wiring them at the point designated **PARALLELING LINES TO OTHER SYSTEMS**.

### — Caution —

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

## Notes For Auto-Synchronizer (Also see F-23448)

- Closing a contact between 12 to 13 allows the Auto-Synchronizer to perform as a speed matching unit. The speed and phase 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 12 and 13 should be opened. Another method would be to use the "Output Hold" dip switch, SW1, on the front of the unit.
  - Open contacts or no jumper from 12 to 13 allows the Auto-Synchronizer to still sense any error, but it does not provide any control or contact closure.
- Phasing of voltage potential to the Auto-Synchronizer is necessary to keep each signal in its correct phase relationship. If the generator voltage is not the same as the voltage rating of the Auto-Synchronizer, step-down transformers are required. The step-down transformers require a nominal 7 VA/PHASE for the Generator input and 2 VA/PHASE for the Bus input.
- Connections to terminals 1 - 3 or 2 - 3 and 4 - 6 or 5 - 6 of the Auto-Synchronizer must be the same voltage potential. 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.

For 230 VAC operation use terminals 4 & 6 for GEN, 1 & 3 for BUS.

For 115 VAC operation use terminals 5 & 6 for GEN, 2 & 3 for BUS.

## General System Notes

- Power switch current rating for a +1 or +4 actuator is 10 amperes and a +6 actuator requires a 25 ampere switch.
- System battery supply — If more than one engine is started using the same battery supply, use a separate battery supply for the DYNA system.

- If each generator has a separate power supply, connect the negative of all power supplies together for a common reference.

- Use shielded and twisted leads as shown.

## Notes for Isochronous Load Sharing Module (Also see F-16892)

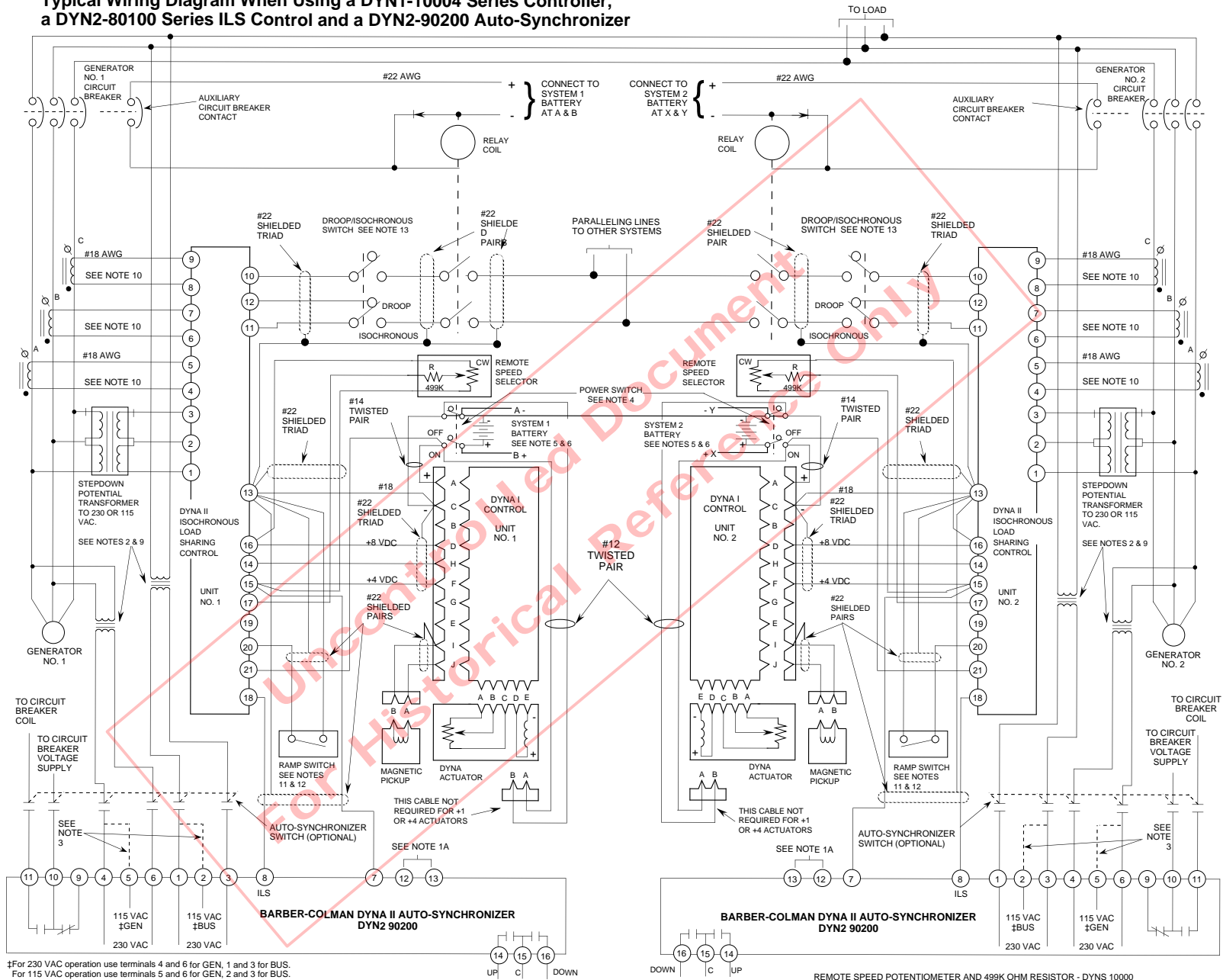
- Select the ILS current transformers to provide 2.5 to 5.0 amperes at full rated load. Current transformers require nominal 12.5 VA/PHASE at 5.0 amperes.
- Step-down potential transformers require a nominal 6 VA/PHASE for the ILS.
- Observe current and potential transformer markings when wiring system because it is necessary to keep each signal in its correct phase relationship to each other.
- Ramp switch and connections to terminal 20 and 21 of ILS are required only on DYN2 80101 and DYN2 80105.
- Ramp switch may be an oil pressure, water temperature or manual switch. Closing the switch starts the ramping function. Opening the switch during or after ramping is completed returns the engine to idle speed.
- Standard "ramp time" is adjustable from 0.5 to 10 seconds. This time can be increased by connecting a 180 mfd (25 Vdc) between terminals 13 and 19 on the ILS. Capacitor should be a Sprague Type 137D, GE Type 69F, CDE Type TX 67 or equivalent.
- If the ramp generator function is not being used, set the "idle speed" potentiometer fully clockwise and the "ramp time" potentiometer fully counterclockwise. It is not necessary to connect power to terminal 21 of ILS.
- If the "load pulse" function is not being used, set the "load pulse" potentiometer fully counterclockwise.
- Droop / Isochronous switch is not required if the system is always operated in the isochronous mode.

CABLE A — DYNK 62-XX (specify length)  
CABLE B — E26-22 (specify length)  
CABLE C — DYNK 123-XX (specify length)  
CABLE D — DYNZ 70-5 (specify length)  
CABLE E — E26-29 (specify length)

Remote Speed Potentiometer — DYNS 10000

\* Shielded Cable — should be purchased from Barber-Colman or customer should purchase a cable with a wrapped mylar supported aluminum foil shield with a drain wire.

**Typical Wiring Diagram When Using a DYN1-10004 Series Controller,  
a DYN2-80100 Series ILS Control and a DYN2-90200 Auto-Synchronizer**



#For 230 VAC operation use terminals 4 and 6 for GEN. 1 and 3 for BUS.  
For 115 VAC operation use terminals 5 and 6 for GEN. 2 and 3 for BUS.

CABLE A — DYNK 62-XX (specify length) CABLE D — DYNZ 70-5 (specify length)  
CABLE B — E26-22 (specify length) CABLE E — E26-29 (specify length)  
CABLE C — DYNK 123-XX (specify length)

REMOTE SPEED POTENTIOMETER AND 499K OHM RESISTOR - DYN5 10000

**FIGURE 2**

**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***

**AEROSPACE & POWER CONTROLS DIVISION**

***DYNA Product Group***

1354 Clifford Avenue  
P.O. Box 2940  
Loves Park, IL U.S.A. 61132-2940

Phone: (815) 637-3000  
Fax: (815) 877-0150

*In Europe contact: Barber-Colman GmbH  
Am neuen Rheinhafen 4, D-6720 Speyer, West Germany  
Tel: 06232-1203, Fax: 06232-12155, Telex: 467 627*

*In Japan contact: Ranco Japan Ltd.  
Shiozaki Bldg. 7-1, 2-chome, Hirakawa-Cho, Chiyoda-Ku  
Tokyo 102, Japan  
Tel: 3261-4293, Fax: 3264-4691, Telex: 0232-2087*