



a Siebe company

Remote Adjustable Speed Range Vs. Series Resistance R For Control Numbers:

DYN1-10003, DYN1-10653, DYN1-10753
DYN1-10004, DYN1-10654, DYN1-10754
DYN1-10006, DYN1-10656, DYN1-10756

When the DYNA engine governor is installed with a remote speed adjustment, the range of speed control that is possible from the remote potentiometer (usually mounted in the junction box) is related to the value of Resistor R when the following wiring arrangement is used:

The range of adjustment is expressed as the pickup adjustment range that is sensed at the magnetic pickup. The following table lists the pickup frequency adjustment range for some representative values of Resistor R.

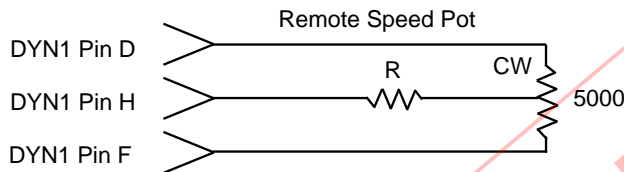


Table 1

Barber-Colman Part Number Of Resistor	R Resistance Into Pin H (In Ohms)	Pickup Frequency Adjustment Range f (In Hertz)		
		DYN1-10003 DYN1-10653 DYN1-10753	DYN1-10004 DYN1-10654 DYN1-10754	DYN1-10006 DYN1-10656 DYN1-10756
CYZR 837-230	10,000	2730	5880	8540
CYZR 837-680	24,900	2290	4850	7170
CYZR 837-670	49,900	1805	3850	5650
CYZR 837-160	100,000	1270	2700	3960
CYZR 837-150	150,000	975	2080	3050
CYZR 837-240	200,000	795	1690	2480
CYZR 837-919	309,000	565	1205	1770
CYZR 837-920	*499,000	375	800	1170

*When a DYN2 ILS Control is being used with the DYNA governor, the value of Resistor R must be 499,000 ohms. Otherwise, the output of the ILS will be distorted.

Resistors can be ordered from Barber-Colman or purchased locally at an electronics distributor. If purchased locally, be sure to obtain resistors that are temperature compensated with a temperature stability rating of 0 ± 50 PPM/ $^{\circ}$ C., (± 50 parts per million per degree of Centigrade) or that conform to military specification MIL-R-10509. Resistors have a power rating of 1/8 watt or me. Common types include Dale types CMF, CMF60, HMF, LMF, MF, MFF; IRC types CCA, MEA, T2-60, T9-60; or American Component type EE. Any of these or their equivalents will be satisfactory.

If the resistor value being used is different than those values listed in Table 1, the pickup frequency adjustment range can be calculated using Formula 1 and the values for X listed in Table 2. Note that the value for X depends on the model of control being used.

Formula 1

$$\text{Pickup Frequency Adjustment Range (f)} = \frac{X}{(68,000 + R)}$$

Table 2

Model Number Of Control	Value of X
DYN1-10003 DYN1-10653 DYN1-10753	213,000,000
DYN1 10004 DYN1-10654 DYN1-10754	454,000,000
DYN1-10006 DYN1-10656 DYN1-10756	666,000,000

Example 1: Model of control used is DYN1-10654. Resistor R is 250,000 ohms.

$$f = \frac{X}{(68,000 + R)}$$

$$f = \frac{454,000,000}{68,000 + 250,000}$$

$$f = \frac{454,000,000}{318,000}$$

$$f = 1427 \text{ Hz}$$

Once we know the pickup frequency adjustment range, either from Table 1 or by calculation using Formula 1, we can calculate the engine speed adjustment range that is possible with the remote speed potentiometer.

Example 2: Engine has speed of 1800 RPM and a flywheel with 142 gear teeth. Model of control being used is DYN1-10004. Resistor R in this installation has a value of 499K ohms.

First calculate the pickup frequency in Hertz using Formula 2. (This is actually the number of gear teeth passing the magnetic pickup in one second.)

Formula 2

$$\text{Pickup Frequency in Hz} = \frac{\text{Engine RPM} \times \text{No. of Gear Teeth on Flywheel}}{60 \text{ Seconds}}$$

$$\text{Hz} = \frac{1800 \times 142}{60}$$

$$\text{Hz} = 4260$$

Then, using Formula 3, calculate the percent of adjustment that is possible for Example 2.

Formula 3

$$\text{Percent of Adjustment} = \frac{\text{Pickup Frequency}}{\text{Adjustment Range} \times 100} \times \text{Pickup Frequency}$$

From Table 1 when using control model DYN1-10004, pickup frequency adjustment range for 499K resistor is 800 Hz. Pickup frequency calculated with Formula 2 is 4280 Hz.

$$\text{Percent of Adjustment} = \frac{800 \times 100}{4260}$$

$$\text{Percent of Adjustment} = 18.779\% \text{ or } \pm 9.389\%$$

The engine speed of 1800 RPM can then be varied by $\pm 9.389\%$ or $\pm 169 \text{ RPM}$.

If the engine is driving a power generator and the generator's frequency output is 60 Hz., you can vary the output by $\pm 9.389\%$ or $\pm 5.6 \text{ Hz}$.

— 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.

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