



CALIBRATION & WIRING FOR DYN1-10749 CONTROLLER

1.0 CALIBRATION PROCEDURE

1.1 Wire the controller as shown in Figure 1 - Wiring Diagram.

1.2 Set the controller gain to 30%.

1.3 Set the controller to Low speed setting.

Speed Select	White	Black/White
Low Speed	Open	Open
Mid Speed	Battery +	Open
High Speed	Battery + or Open	Battery +

2.0 START ENGINE - LOW SPEED (NO LOAD)

2.1 Adjust the controller low speed potentiometer for desired engine speed.

2.2 Adjust the GAIN potentiometer clockwise (CW) until the engine begins to hunt. (If the engine remains stable at 100% GAIN, physically disrupt the actuator linkage by hand). With the engine hunting, turn the gain potentiometer counterclockwise (CCW) until stable.

-NOTE-

If the engine remains stable with GAIN at 100%, leave it set at 100%.

2.3 Set the controller to Mid speed setting.

2.4 Adjust the controller Mid speed potentiometer for desired engine speed.

2.5 Adjust the GAIN potentiometer clockwise (CW) until the engine begins to hunt. (If the engine remains stable at 100% GAIN, physically disrupt the actuator linkage by hand). With the engine hunting, turn the gain potentiometer counterclockwise (CCW) until stable.

2.6 Set the controller to High speed setting.

2.7 Adjust the controller High speed potentiometer for desired engine speed.

2.8 Adjust the GAIN potentiometer clockwise (CW) until the engine begins to hunt. (If the engine remains stable at 100% GAIN, physically disrupt the actuator linkage by hand). With the engine hunting, turn the gain potentiometer counterclockwise (CCW) until stable.

2.9 Recheck the engine speed and adjust the applicable speed potentiometer accordingly.

3.0 CHECK SPEED CHANGE RECOVERY

3.1 While the engine is operating, switch between run speeds. The engine should remain stable and continue to run.

3.2 The Integrator jumper alters the controller to better match the engine dynamics. (Any engine, gas or diesel, can operate with jumper in or out.)

3.3 Remove the Integrator jumper and switch between run speeds. Remove the jumper if engine appears to respond slow. Install the jumper if the engine appears too fast or has large overshoots.

3.4 Step between speed settings and again verify the gain setting.



4.0 TROUBLESHOOTING CHART FOR DYN1-10749 CONTROLLER

1. PROBLEM: SYSTEM IS COMPLETELY DEAD. ACTUATOR LEVER STAYS AT MINIMUM.

Means of Detection	Corrective Action
1.1 Check for battery voltage at controller on B+ and B-leads.	Check battery connections and contacts for turning power "ON" to the controllers.
1.2 Check for proper linkage set up.	Correct and free linkage.
1.3 Magnetic pickup signal is absent or too low. Measure AC voltage across MPU signal and common leads while cranking the engine. Voltage should be at least 2.5 VAC. -NOTE- The voltmeter should have an impedance of 5000 ohms/volts or higher.	Check pole tip gap over gear tooth. It should be 0.37 ± 0.127 mm [0.015 ± 0.005 inches] or adjusted to obtain 2.5 VAC or greater. Verify magnetic pickup wiring.
1.4 Measure the resistance of each pin to the metal case of the magnetic pickup. No continuity should be evident.	If there is continuity to case, replace the magnetic pickup.
1.5 Remove actuator leads and apply battery voltage directly onto the actuator leads.	Check for open circuit on actuator wires. If the actuator still does not move to full stroke, continue with steps below.
1.6 Measure actuator coil resistance: 12 VDC unit - Coil resistance 1.8 ± 0.2 ohms. 24 VDC unit - Coil resistance 7.3 ± 1.0 ohms.	If the actuator coil is open or shorted to case, replace actuator. If the governor still does not operate, continue with steps below.
1.7 Measuring the resistance of each coil lead to the actuator case should indicate an open circuit on a low scale of the ohmmeter.	If continuity is detected, replace the actuator.
1.8 The following should be found when measuring current in series with one of the actuator leads from either actuator lead: 12 V Actuator - 2.5A to 5.9A 24 V Actuator - 1.0A to 3.0A (Values may indicate negative if polarity of meter is reversed.)	If no output current, replace the controller.

2. PROBLEM: ACTUATOR LEVER GOES TO FULL STROKE WHEN DC POWER IS TURNED "ON" (ENGINE IS NOT OPERATING).

Means of Detection	Corrective Action
2.1 Check magnetic pickup leads for proper shielded wire or open shield.	Verify and correct wiring as necessary.
2.2 Fail-safe circuit in the controller may be damaged or defective.	Replace the controller.
2.3 With DC power "OFF" disconnect leads at actuator. Check continuity of each lead to case of the controller. There should be no continuity.	If continuity is detected, replace the controller.
2.4 Check for shorted actuator lead.	Correct or replace actuator leads as necessary.

3. PROBLEM: ERRATIC GOVERNOR OPERATION.

Means of Detection	Corrective Action
3.1 Measure the DC voltage on B+ and B- leads of controller. Nominal battery voltage should be indicated.	If nominal voltage is present, wiring is correct.
3.2 Battery voltage should be 80% of nominal or greater for governor to operate properly.	Check battery and charging system.
3.3 RFI noise due to incorrect shielding.	Correct wiring per applicable wiring diagram.
3.4 RFI noise fed through power supply leads.	Connect twisted pair power leads directly to the battery.

4. PROBLEM: SLOW, SMALL AMPLITUDE, HUNTING OF SPEED OR FREQUENCY.

Means of Detection	Corrective Action
4.1 Sticking or very loose linkage	Correct linkage.
4.2 Improper linkage arrangement. (Stroke too short or improper.)	See installation information.

5. PROBLEM: FAST OSCILLATION OF GOVERNOR LINKAGE.

Means of Detection	Corrective Action
5.1 Verify calibration settings of the controller.	Readjust settings.

6. PROBLEM: ENGINE WILL NOT START. ACTUATOR AT FULL STROKE DURING CRANKING.

Means of Detection	Corrective Action
6.1 Make sure fuel is available. Air may be trapped in fuel line. Try to operate engine manually.	Check fuel to the engine and check for correct wiring to shutdowns.

Barber-Colman Company
Aerospace & Power Controls Division
DYNA Product Group

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

Speed Select
Input
Mid High



NOTE

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