

For use with Lancer JR. Type L1
General Purpose AC Inverter Drives.

SPEED FEEDBACK CONTROL MOD KIT

MODEL 92451 46S02733-0010

Before installing this kit, a **TECHNICALLY QUALIFIED INDIVIDUAL**, who is familiar with this type of equipment and hazards involved, should **READ** this **ENTIRE MANUAL**.

IMPORTANT

This kit may have been installed by the factory. However, certain steps can only be completed at the installation site. Therefore, review and then perform those steps which complete the installation process.

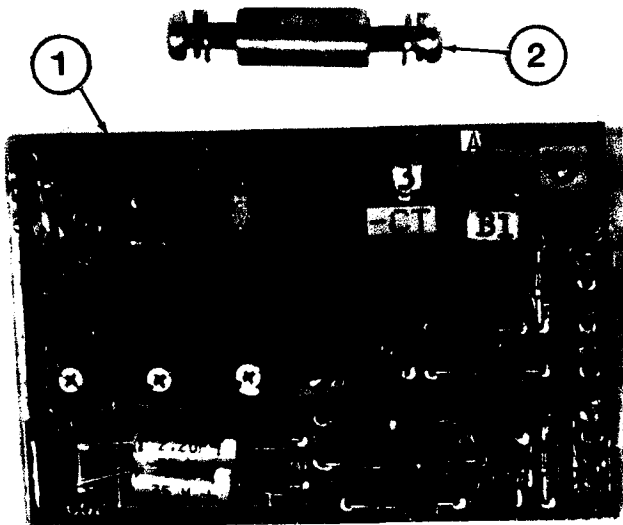


Figure 1.

DESCRIPTION

This Louis Allis kit includes all the material described in Table 1 and illustrated in Figure 1. It is intended for use with the following tachs:

AC - 24 poles min.
9-52V at max. speed

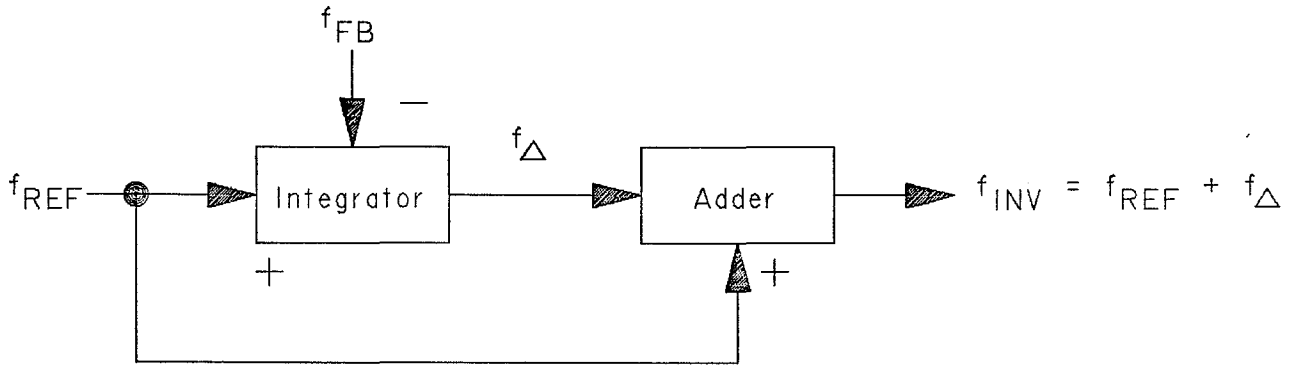
DC - 8-48V at max. speed

The speed feedback control circuit improves speed regulation to 1% of top speed by compensating for slip RPM (difference between inverter frequency applied to the motor and output shaft RPM) which increases with increasing load. This is accomplished by comparing speed command (f_{REF}) - as set by the **FREQ. ADJ.** potentiometer on the operators control plate or customer process control signal - to speed feedback - motor shaft RPM as sensed by the tachometer/generator. The difference or error signal (f_{Δ}) is then added to the speed command to become the new inverter frequency reference ($f_{INV} = f_{REF} + f_{\Delta}$) as shown by the block diagram in Figure 2.

Table 1. Kit Contents

ITEM	QTY	DESCRIPTION	PART NO.
1	1	Speed Feedback PCB	05P00090-0163
2	1	Standoff and Hardware (Installed on Item 1)	--

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f_{REF} - SPEED COMMAND

f_{FB} - SPEED FEEDBACK

f_{Δ} - DIFFERENCE OR ERROR

f_{INV} - NEW INVERTER SPEED REF

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Figure 2. Block Diagram - Speed Feedback Control Scheme

INSTALLATION

IMPORTANT

a. If the Mod Kit is to be installed in the inverter, proceed to install according to these installation instructions.

b. If the Mod Kit is to be installed in a Multi Adapter mod assembly, FIRST complete installation steps stated in 02Y00025-0204. Then continue with these installation instructions.

1. Disconnect all electrical power to drive.
2. Open or remove drive front cover.

3. Verify voltage has been disconnected by using a voltmeter to check for voltage at incoming power terminals.

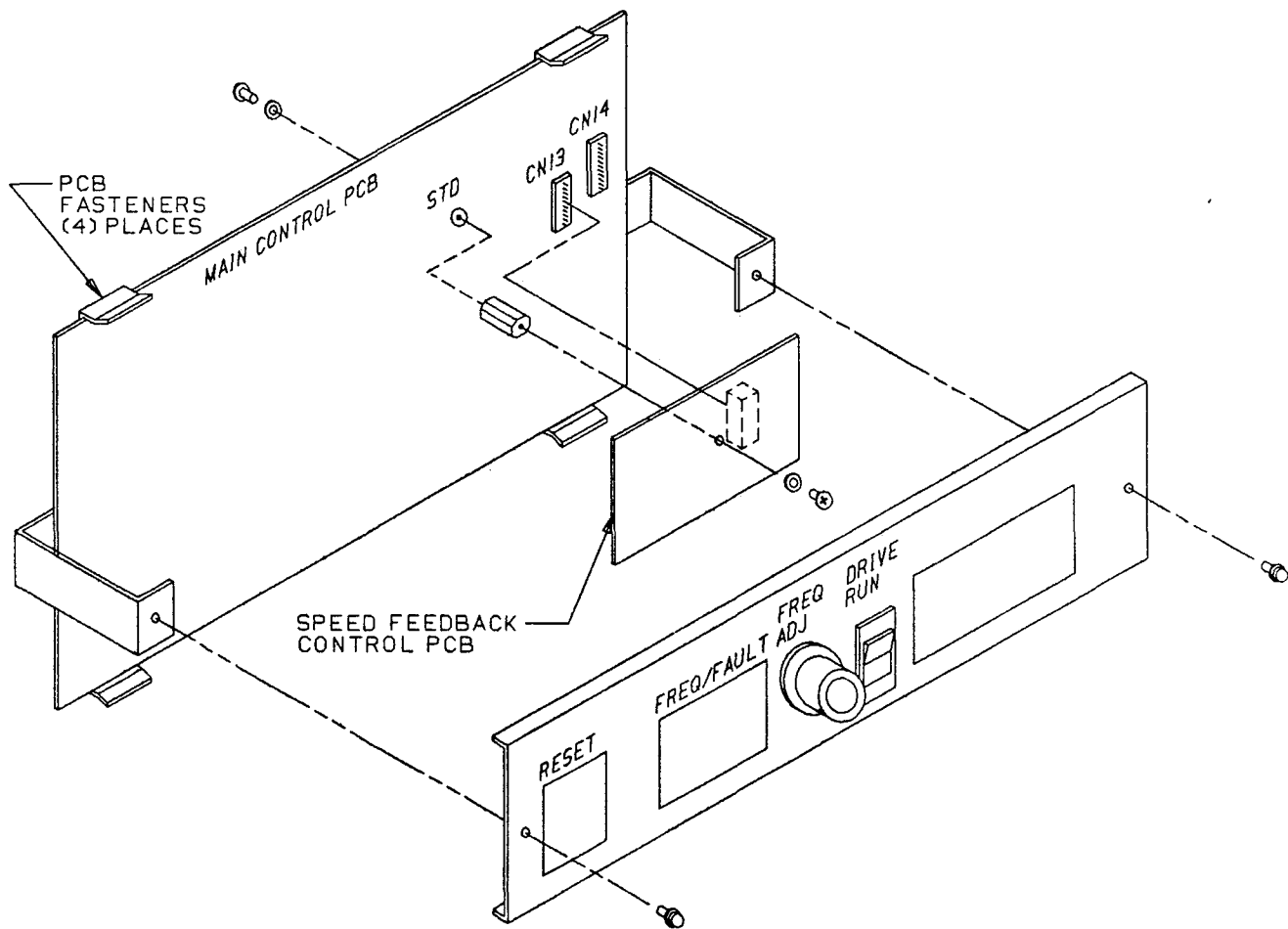
WARNING

HAZARDOUS VOLTAGE CAN CAUSE SEVERE INJURY OR DEATH.

LOCK ALL POWER SOURCES FEEDING DRIVE IN "OFF" POSITION.

4. Remove both sets of hardware and the standoff from the Speed Feedback Control PCB. Retain standoff and hardware.

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Figure 3.

5. See Figure 3. Remove the two Phillips screws which secure the existing Operators Control Station (OCS) plate; retain the screws. Leave the wiring between the OCS plate and the Main Control PCB terminal strip intact. Allow the plate to drop below the PCB.

6. See Figure 4. Cut jumper J8 on the Main Control PCB.

7. If installed in inverter:

a. See Figure 3. The Main Control PCB is held in place by (4) hinged locking PCB fasteners. Grasp the top of the board in a convenient location and release from the top (2) fasteners

by gently pulling the board forward while pushing upward on the locking portion of the fasteners.

b. See Figure 3. Insert one set of mounting hardware thru the 0.12 inch diameter hole designated "STD" on the Main Control PCB, from the rear side. Tighten the metal spacer onto the screw. Then snap the Main Control PCB back into place.

c. See Figure 3. Note that there is an 11-pin female connector (CN13A) on the underside of the Speed Feedback Control PCB. Position the board so that this connector CN13 on the Main Control PCB. Ensure that all 11

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pins engage and then snap the board into place. Use the other set of hardware to secure the board to the metal spacer.

8. If installed in Multi Adapter:

NOTE

For this installation, the standoff and hardware supplied in the mod kit will not be used.

a. At the option position where the board will be installed in the Multi Adapter, remove the hardware from the end of the metal spacer.

b. Note that there is an 11-pin female connector (CN13A) on the underside of the Speed Feedback Control PCB. Position the board in the option position so that this connector is aligned with male pin connectors CN13()

on the Multi Adapter PCB. Ensure that all 11 pins engage and then snap into place. Use the hardware to secure the board to the metal spacer.

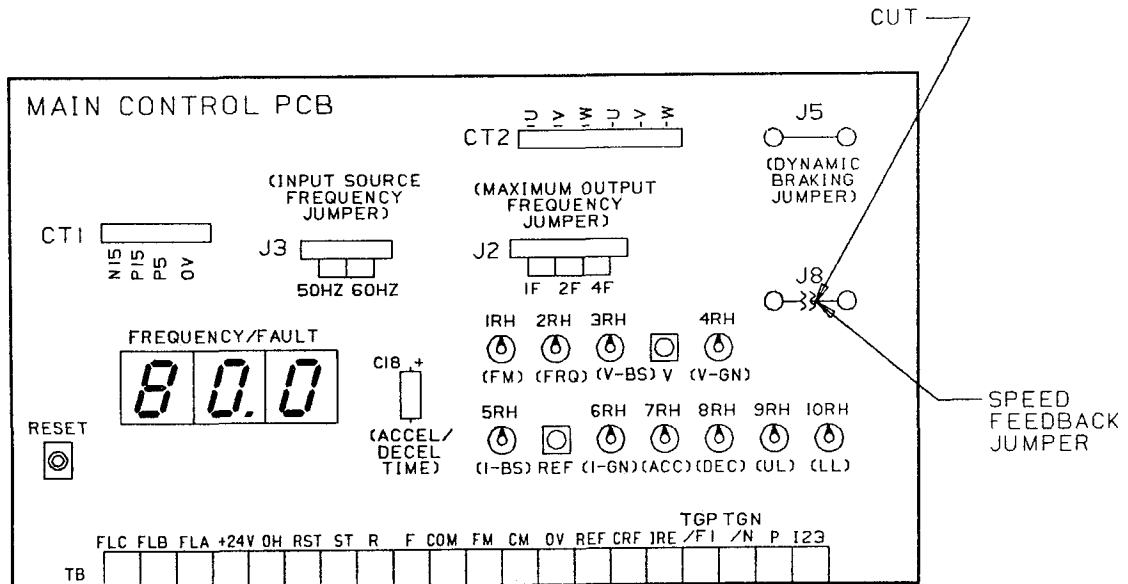
9. See Figure 5. Connect shielded tachometer leads to terminals TGN/N(-) and TGP/FI(+) on the Main Control PCB or the Multi Adapter PCB.

SET-UP AND ADJUSTMENTS

NOTE

The PCB included in this kit will be one of two revisions (see Figure 6). Circuit and component differences are reflected in the following steps.

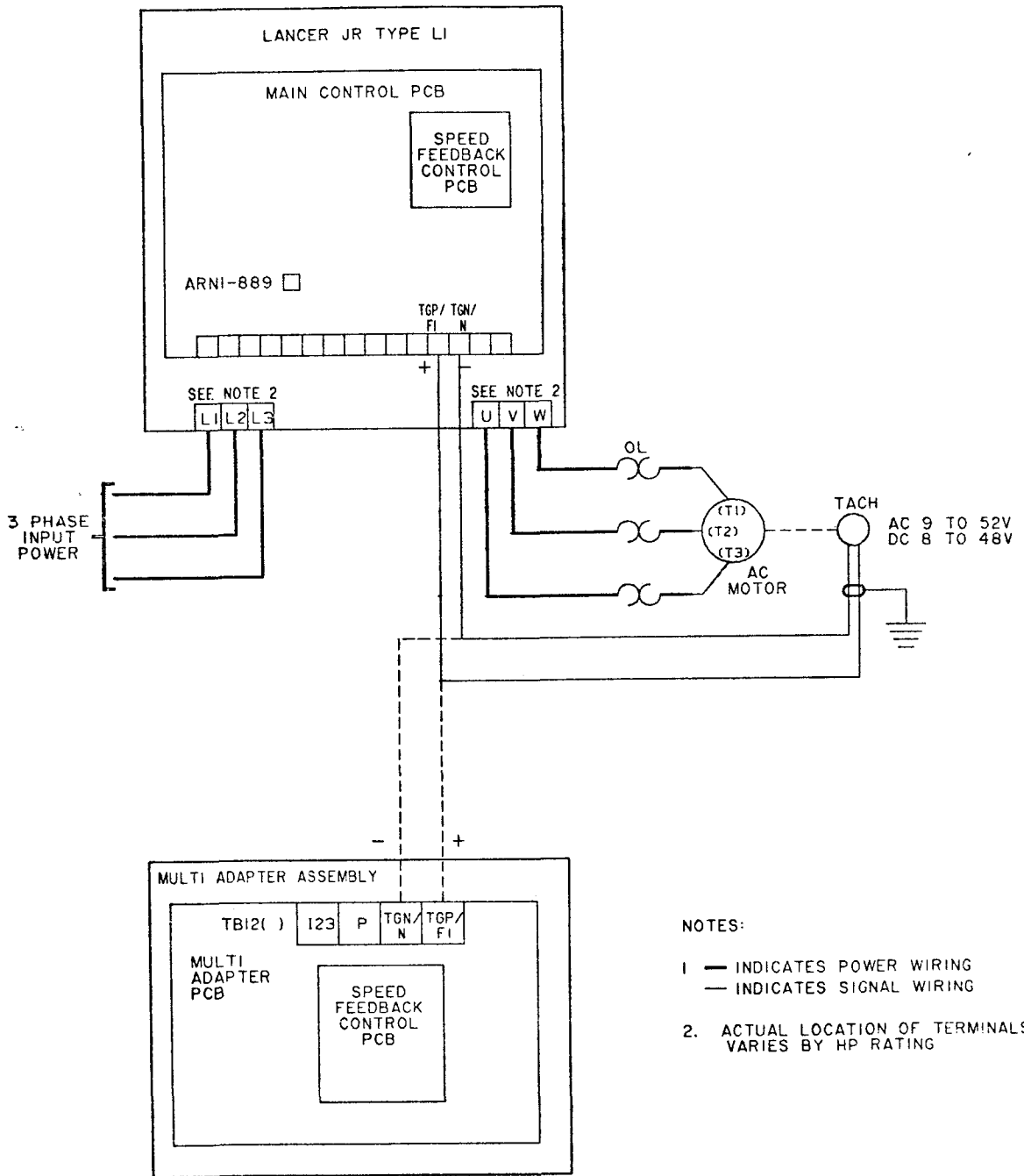
10. Verify jumper J51 is in the "OFF" position on Rev. B PCB, or not installed on Rev. A PCB.



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Figure 4.

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NOTES:

1 — INDICATES POWER WIRING
— INDICATES SIGNAL WIRING

2. ACTUAL LOCATION OF TERMINALS Varies BY HP RATING

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Figure 5.

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NOTE

To measure or jumper to common, use terminal COM on the Main Control PCB or TB124-0V on the Multi Adapter PCB.

11. Set the FEEDBACK VOLTAGE (41RH) and STABILITY AND RESPONSE (42RH) potentiometers fully CCW. On Rev. B PCB, set SPEED ERROR (43RH) fully CCW; on Rev. A PCB, jumper test point TP1 to common.

12. With motor disconnected, operate the inverter in the Manual mode. Adjust maximum and minimum frequencies as required per instruction manual 4U-6. Stop drive and remove power.

13. See Figure 6. Short capacitors C51 and C52 on the Speed Feedback Control PCB by installing a temporary jumper.

14. Adjust 42RH fully CW. On Rev. B PCB, adjust 43RH fully CW; on Rev. A PCB, remove jumper installed in Step 11.

15. Connect the unloaded motor to the output of the inverter. Connect a

voltmeter capable of measuring 15 VDC between test point TP1 and common.

16. Operate the inverter at maximum speed in the Manual mode. Turn FEEDBACK VOLTAGE (41RH) potentiometer CW until error voltage at TP1 reads zero on the voltmeter.

17. Stop drive and remove power.

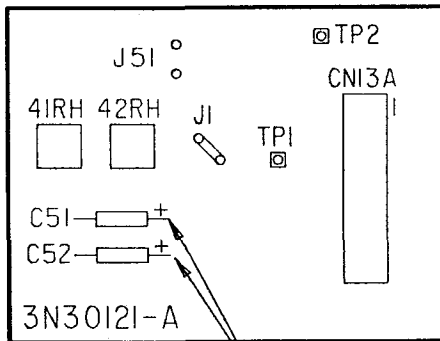
18. Remove temporary jumper installed in Step 13 and disconnect voltmeter.

19. Set STABILITY AND RESPONSE (42RH) potentiometer at midpoint.

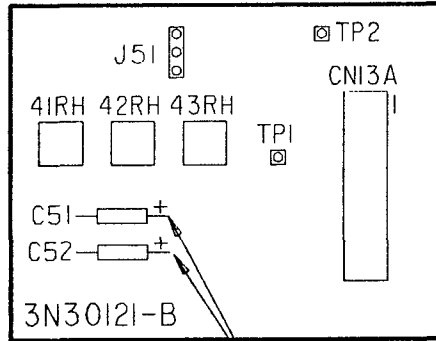
20. Operate the inverter at maximum speed in the Manual mode. Apply load and note response. Adjust control system stability and response with 42RH; for optimal performance, if instability or hunting occurs, lengthen response time by turning 42RH CW.

21. Stop drive and remove power.

22. Re-position and secure the OCS plate.



REV A VERSION



REV B VERSION

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Figure 6.

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23. Reinstall and secure all enclosure covers.

This completes installation, set-up and adjustments for this mod kit.

Place this instruction sheet immediately behind the front cover of the inverter instruction manual.

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