

January 26, 2007

## TEAM UPDATE #6

### GENERAL NOTICES

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#### Update from IFI:

The 2007 Robot Controller has an issue where the Robot can continue to run for about 1 second (the lost Link timeout) after a Link has been lost. The Robot will continue to execute the last 2 received commands repetitively (a run-on condition) until the lost Link timeout occurs. If the RC is intermittently missing data packets, the run-on can be extended to a few seconds. An example would be where the Robot may be running at a maximum speed when missing data occurs resulting in the Robot continuing to run at maximum speed for a few seconds. We recommend Tethering for your prototyping until this issue is corrected.

#### Section 0 - Introduction

No changes.

#### Section 1 - Communication

No changes.

#### Section 2 – Team Organization

No changes.

#### Section 3 – At the Events

No changes.

#### Section 4 – Robot Transportation

The "**Shipping / Drayage**" section (<http://www.usfirst.org/community/frc/regionalevents.aspx?id=430>) for the Midwest Regional has been changed to show a new robot shipping address for the drayage terminal:

J and J Motor Service  
2338 South Indiana Avenue  
Chicago, Ill. 60616

If you have already printed your shipping document, be sure to replace it with the updated version showing this address.

## Section 5 - The Awards

The **Autodesk Visualization Design Award** for Regional Competitions has been posted under Section 5 of the 2007 manual,

<http://www.usfirst.org/community/frc/content.aspx?id=452>

It is also found under the main page of "Documents and Updates".

## Section 6 – The Arena

*2007\_Field\_RAIL\_GATE\_FAB\_AND\_ASSY\_R2.pdf* has replaced  
*2007\_Field\_RAIL\_GATE\_FAB\_AND\_ASSY\_R1.pdf*.

Item 31 of the Parts list has been changed to correct an error in the description and Part Number.

## Section 7 – The Game

No changes.

## Section 8 – The Robot

Revised *2007\_ROBOT\_SIGNAL\_LIGHT.pdf* drawing file:

A detail was added to show where the signal light plugs into the Robot Controller.

The on-board battery charging circuit schematic was updated by IFI on 1-25-07 and can be found at <http://www.ifirobotics.com/rc.shtml> (follow Battery Charging Circuit link). This update corrects the node in the circuit to which the Robot Controller Backup Battery Input should be connected. Note that this circuit will allow for the control system to function without a 7.2V Backup Battery, but that it is illegal to run the robot in competition without the 7.2V Backup Battery.

**Section 8 – The Robot, Rev D** has been modified to include the following changes:

Rule <R56> has been updated to state that:

<R56> The 7.2v backup battery may be charged on or off the ROBOT. When off the ROBOT, the battery is to be charged with the provided 7.2V backup battery charger. When mounted on the ROBOT, the backup battery may only be charged from the 12VDC primary battery using the Battery Charging Circuit available from Innovation First Inc. (note: IFI will provide the design for this circuit on the IFI website, however teams must obtain the parts for this circuit and assemble it themselves). The use of this circuit is strongly encouraged.

## Section 9 – The Tournament

No changes.

## Section 10 – Kit of Parts

- The sprockets provided in the 2007 Kit of Parts were custom manufactured for *FIRST* and are not COTS parts. As such, only the two 24-tooth sprockets received in the Kit may be used on your Robot. Teams are welcome to fabricate equivalent parts from COTS items.

Comparable COTS #35, 24-tooth sprockets are available from vendors such as Innovation First, McMaster-Carr, and others. You may have to make modifications to these sprockets in order to mount them to your wheels, get sufficient spacing for your chain, etc. In this scenario, the additional sprockets would be considered modified COTS items.

- Some teams have experienced binding with their 56mm transmissions. Please read the memo from BaneBots below for more information about this issue and ways to solve it.

We have seen that in some instances the pinion extends too far into the gearbox and causes the gearbox to bind. We have identified three things that may cause this:

- 1) There is grease between the stages that temporarily holds the stages too far apart. Turning the gearbox a few times by hand or removing the internal gears and reinserting them can usually resolve this. **DO NOT REMOVE THE GREASE FROM THE GEARS.**
- 2) The pinion spacer is too long. If the pinion extends beyond the shaft the spacer is too long. The easiest fix this issue is to shorten the spacer so that the pinion is flush with the end of the shaft.
- 3) The motor mounting plate is too thin or shaft is too long. We have recently seen small variances in the thickness of the mounting plate and the length of the CIM motor shaft. If the pinion is flush with the end of the motor shaft and there is still a problem, this is likely the problem. There are two ways to address this problem. You can either shorten the CIM shaft and spacer or you can add a thin spacer between the gearbox and the motor mounting plate.

With proper correction, the mounting problem does not affect the reliability of the gearbox. We do not know of any reliability issues with either the gearbox or the two-motor adapter.

Please keep the following two points in mind:

- Either support the gearbox shaft or keep the load as close to the face of the gearbox as possible.
- Do not depend on the gearboxes to support the weight of the motors - support the CIM motors.

If you are having a problem with any of our products, please contact us for assistance - [www.banebots.com/contact](http://www.banebots.com/contact).

## Documents and Updates

No changes.

## **2007 *FIRST* Guidelines, Tips, and Good Practices**

No changes.

## ***The Question & Answer System***

A consolidated, printer friendly version of the Team Q & A, as of January 26, 2007, can be found on the Q & A System page on the *FIRST* web site, <http://www.usfirst.org/community/frc/content.aspx?id=456>