

NIRSPEC Handling cart fabrication

The NIRSPEC handling cart is shown in two views of drawing 609044 (attached). It is a rectangular frame of steel tube, with 4" rollers at each corner. The rollers will run on flat rails. In the middle of each cross tube is a small angle bracket with some smaller rollers. These run in a center track to keep the cart running straight. At the rear of the cart is a motor and gearbox assembly. This drives two large gears which mesh with a rack in the center rail, to drive the cart along the rails. An electrical switch box is mounted right above the motor.

The side members of the cart bolt into the tops of the cross members, and the motor/gear assembly bolts onto the rear face of one of them, so we have backing plates which go inside the hollow tubes to give us enough thickness to thread into. The roller brackets weld onto the ends of the cross members. This means we have to assemble the cross-members in the right order. The backing plates have to go inside FIRST, before we weld on the roller brackets.

Another issue is the accuracy of the holes for mounting the rollers to the roller brackets. Since the brackets are to be welded onto the ends of the tubes (drawings 609081 & 609082), they might not end up exactly parallel. What we need to do is bore out the holes slightly undersized, do the welding, then bore out to the final diameter and spot face the outer surface (drawing 609046).

So the order of fabrication is:

1. Make cross member backing plates (609073 & 609080).
2. Make cross member tubes (609078 & 609079).
3. Install backing plates inside cross member tubes.
4. Make roller bracket backing plates (609045).
5. Make roller brackets but don't bore out large holes to final diameter (609046).
6. Weld roller bracket backing plates to back of roller brackets, then roller brackets to ends of cross members (609081).
7. Bore out roller brackets to final diameter and spot face (609046).
8. Make center guide brackets (609083 & 609084).
9. Weld center guide brackets to cross members (609085 & 609086).
10. Make roller guards (609047).
11. Make side tube stiffeners (609074).
12. Make side tubes (609070).
13. Install stiffeners into side tubes and bolt to cross members.

This gets us to the stage of having a cart we can push up and down the rails. The motor/gear assembly and center guides will bolt on later.

If you have *any* questions, please call George at 6-7536.