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Jun. 17, 2016

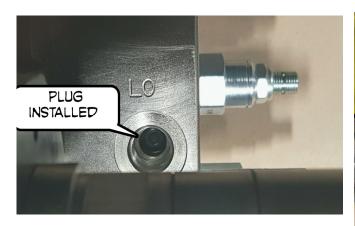


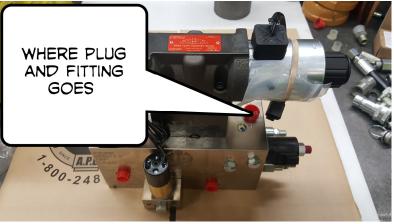
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## # 32 Changing Drill/Clamp Manifold For Shift On The Fly

We now have Black Bruin and 100K drills that can shift on the fly. We have updated our drill clamp manifolds so that, with a couple changes, they can support shift on the fly.

To shift on the fly hydraulically, we need to send 2 different shift lines to the drill. These lines will shift the speed spool in the low and high directions. The drill/clamp manifold was set up previously to only shift in one direction (HIGH). To send oil out for the shift on the fly we added a 1/16" NPT plug to change the oil path. This plug is what will enable a manifold shift on the fly or not. (See IMGS. 1,2 for plug location.) IMG.1 IMG.2





When the plug is installed it is set up for shift on the fly. The plug directs the oil to the low speed port when the clamp/shift switch is in the neutral position. If the plug is removed the manifold will be set up for **not** shifting on the fly.

Below is the list of hydraulic changes for shift on the fly.

- 1. Make sure 1/16" NPT plug is installed in **LOW** port on manifold. (**IMG.1**)
- 2. Install 6 MORB X 6 JIC 90-degree fitting (222015) in the LOW speed port on the manifold. (IMG.3)

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Fax 011-86-21-3604-0553

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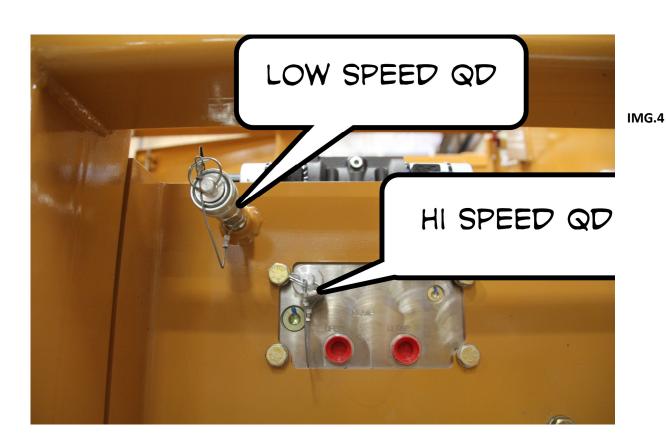
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### IMG.3

- Drill and Weld NPT boss into coupler panel. (See IMG.4)
- 4. Add fittings and Q.D. to the NPT boss on the coupler panel. Connect the 3/8" hose from the manifold to the boss. (See IMGS. 5,6)



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IMG.6

The manifold is now set up to shift on the fly. See the below shift on the fly kit 1005203.



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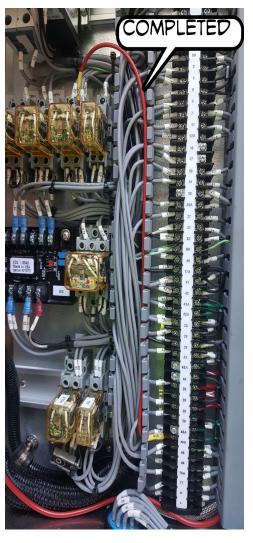
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We now need to set up the panel so the we can electrically shift on the fly. Below are the steps to convert the panel.

1. Attach jumper wire from #45B on TB, to 45C on DR relay #1. (See IMGS. 7,8,9) IMG.8 IMG.9







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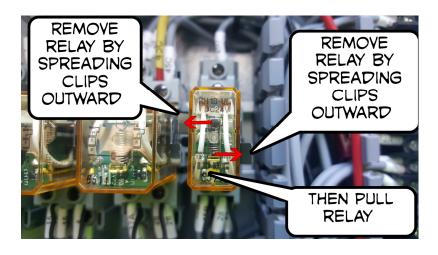


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Remove AHLR relay, place in plastic bag (in kit 1005203) then insert in wire gutter. (See IMGS.10,11,12)

**IMG.10 IMG.11** 



**IMG.12** 





The panel is now set up to bypass the drill shift interlock.

You have completed all shift on the fly modifications!

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