

BLACK KNIGHT SoR CLIFFY™ PROTECTOR INSTALLATION

The installation of the Cliffy™ Protectors on BKSoR Premium/LE/Pro will require the following tools:

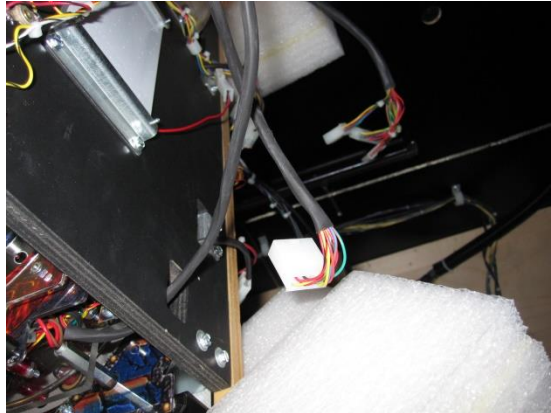
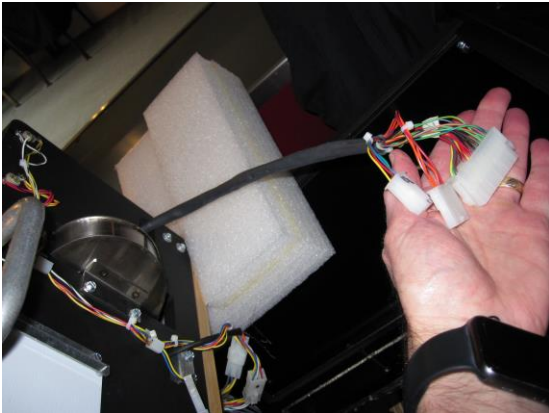
- Set of SAE nut drivers, preferably with magnetic tips
- Phillips head screwdrivers
- Scissors or wire cutter to cut zip ties
- Nail punch and hammer
- Telescoping magnetic pick-up tool

It is advisable to have on hand:

- Sharpie Marker to mark connectors
- Digital camera to help put things back together
- Small adjustable wrench or pliers
- A large flat surface/table to layout/store the items safely as you remove them from the game
- Footstool
- Stiff foam pads to lift up the back of the main playfield for easier access when removing and reinstalling the upper PF. See the video in the link below.

First you will need to remove the **upper playfield** completely from the game. There is a very useful video online on how to do this here: <https://www.youtube.com/watch?v=QhdeNhbycgc>

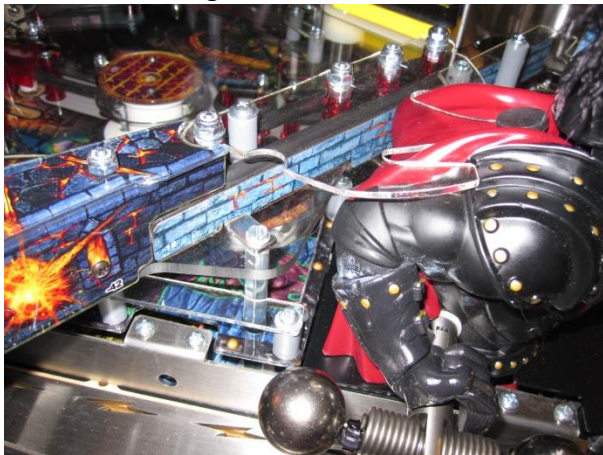
Disconnect the 2 cables going through the bottom left and right corners of the back panel, 3 connectors on the left, 1 on the right.



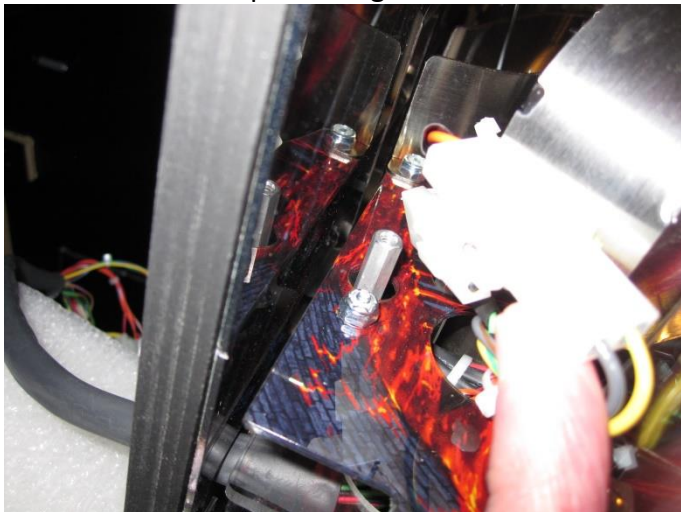
Remove the 2 screws holding the scoop to the top of the shooter lane at the right of the upper PF and remove the scoop.



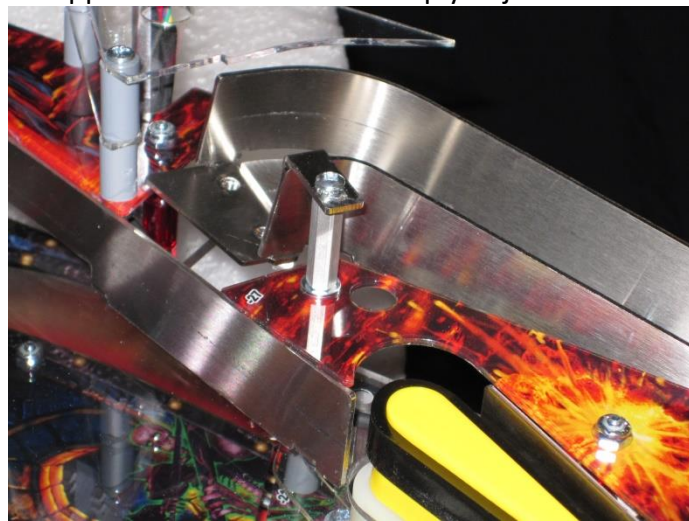
Remove the single screw on the left side of the Knight figure in front of the upper PF.



Remove the metal post along the back left side of the upper PF with a ¼ inch nut driver.

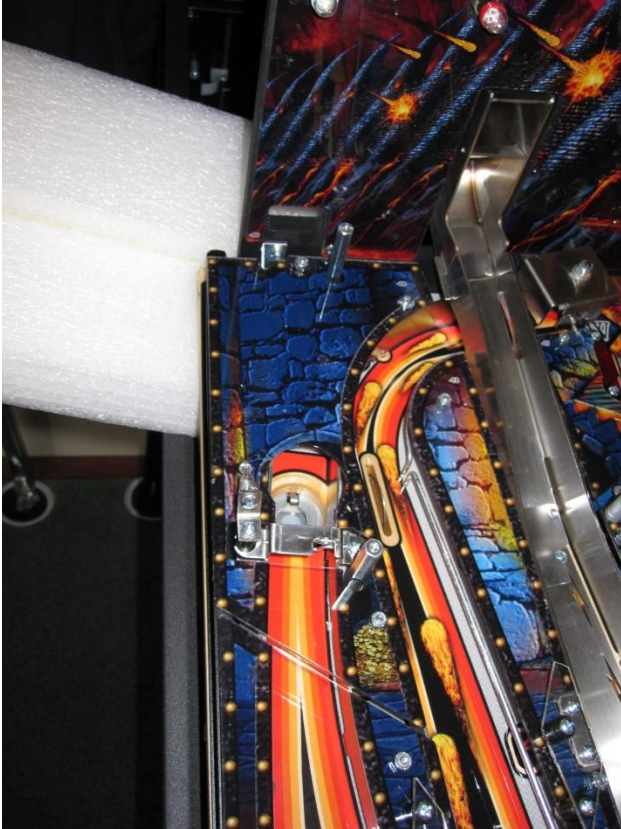


Remove the similar metal post along the right side of the upper PF in front of the scoop you just removed.



Now you can lift the upper playfield up and out, carefully feeding the cables through the holes in the back panel. Set all the parts you just removed safely out of the way. The flipper stays in place. The white flipper bat shaped plastic beneath the flipper rotates freely and you will need to have this in position beneath the flipper bat itself when you re-assemble the upper PF.

To install the **LEFT KICKOUT PROTECTOR**, remove the top 3 playfield plastics along the left side of the playfield to expose the metal ball guides beneath. There is an anti-balltrap device above the upper most plastic attached to the one way ball gate. Loosen the screw holding it in place and rotate the device 90 degrees clockwise to more easily remove the plastic.



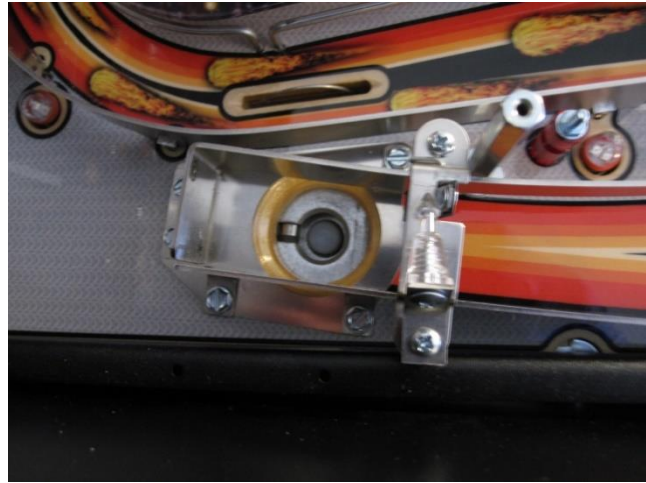
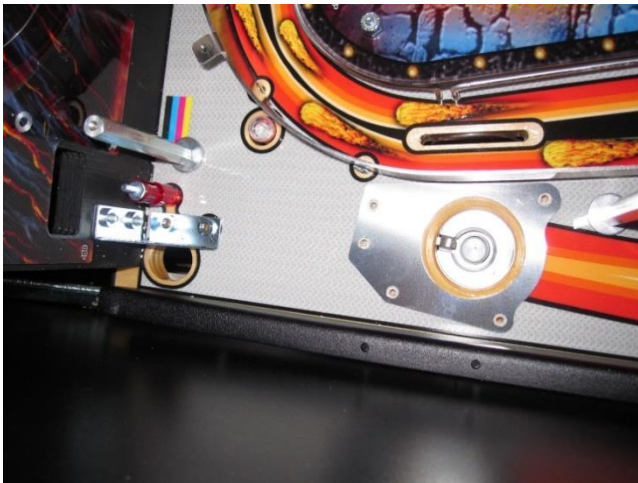
I initially thought that I would only have to remove 1 or 2 plastics but the metal rail ball guides need to be removed and that requires all 3 plastics out.



Now remove the 2 metal rails with mostly surface screws and one bolt through the playfield. I suggest thoroughly cleaning this area of the playfield while you are here as you have excellent access. Note that if you use Novus 1, you will then need to use the alcohol wipe provided to then wipe down the small patch of the playfield in front of the kickout hole where the protector adhesive attaches. The adhesive will not adhere to wax in the Novus 1.

Dry fit the protector and then peel the backing and put it in. Reinstall the rails and the plastics. Don't forget to rotate the anti-balltrap device back so that it points to the back of the game!

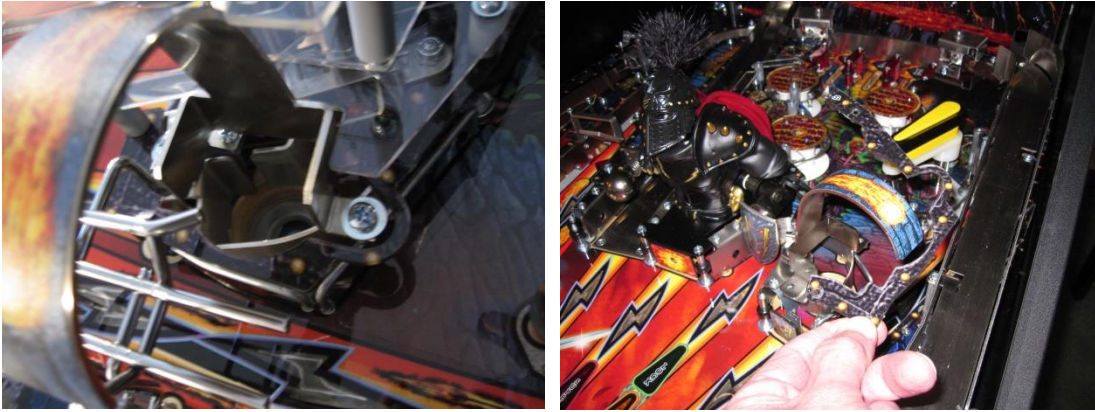
If you have a drop target protector (LE/Prem) now would be a good time to install in the single drop target in this lane before the plastics go back on, but it looks like it can be done with the plastics in place. My kit did not come with a drop target protector but Cliffy said it will be part of the set going forward. Pic installed below



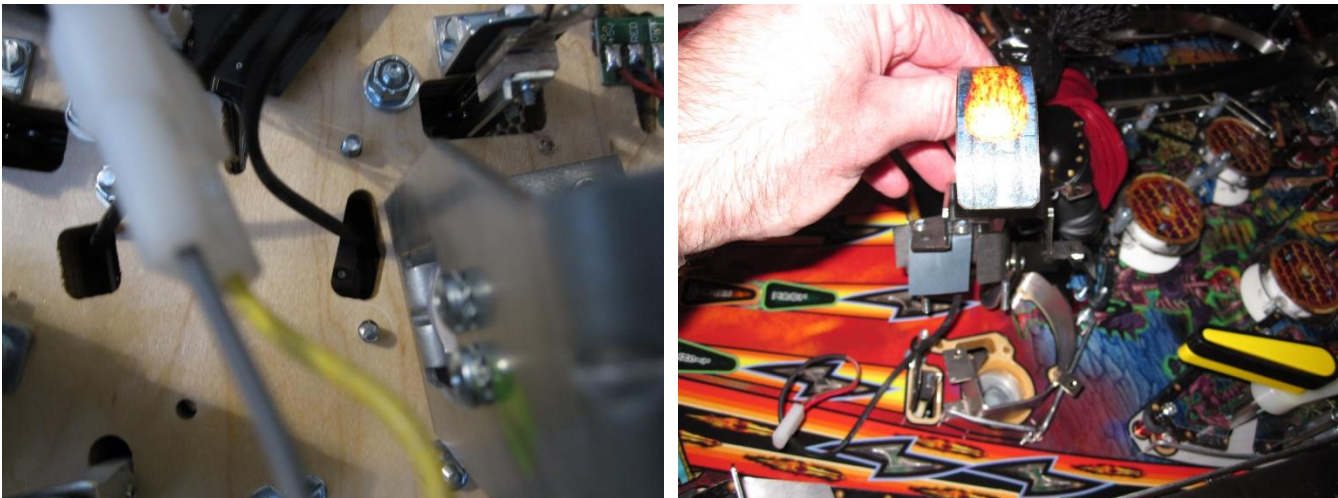
Now on to the **RIGHT VUK** to the right of the Knight figure. Unfortunately, there is so much stuff overlapping here it is hard to take decent pictures. Yet, here we go...

Remove the right wireform ramp that extends from the VUK to the right inlane.

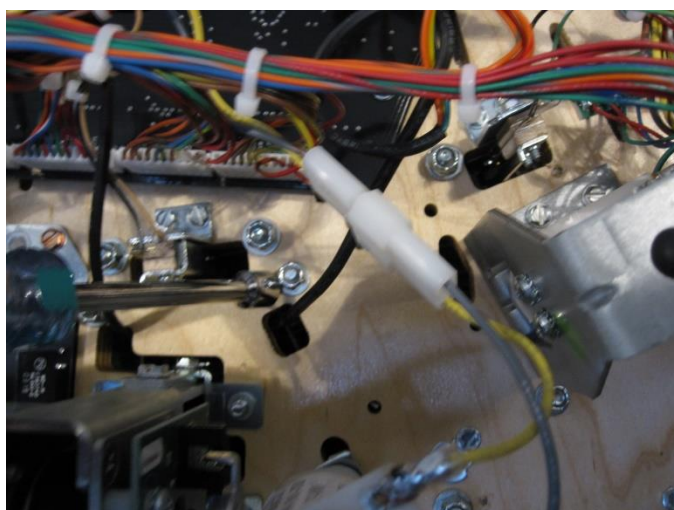
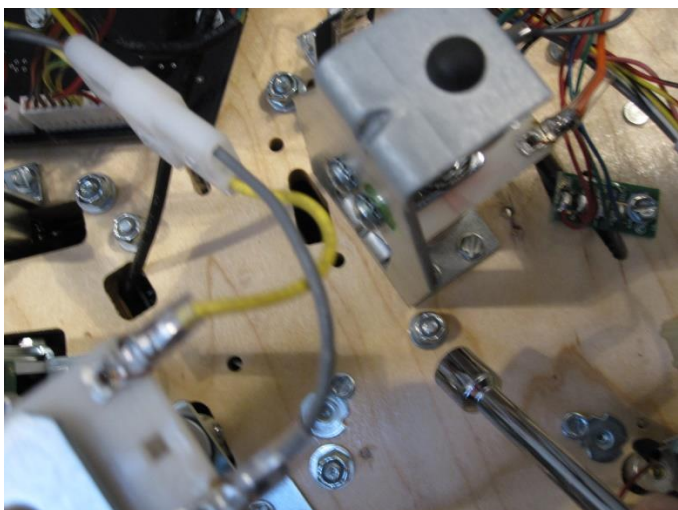
Remove the 3-tiered clear plastic assembly between the Knight and the VUK/scoop. Inspect which screws actually hold it down vs. the ones that hold it together. You want to remove it as a single piece, so only unscrew those that hold it in down. The C-shaped art-covered playfield plastic also comes loose and you can remove both together with the screws. Mind the little grey stand-offs beneath as they very easily slip off the end of the screws and hide in the most inconvenient places on the playfield!



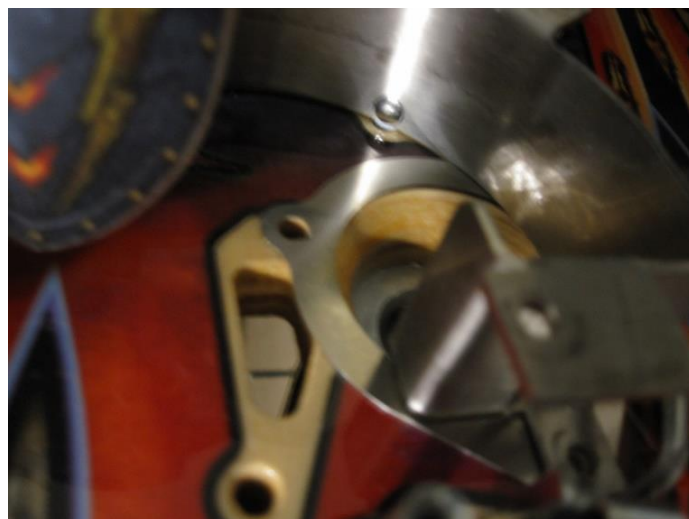
Now remove the curved scoop that takes the ball from the VUK to the wireform ramp that you just removed. There are 2 bolts under the playfield, one screw in front of the scoop and 1 bolt to the right of the knight. Also disconnect the wire connector under the playfield.



Loosen the curved metal rail ball guide to the right of the Knight, under the Knight's Shield with under playfield bolts and remove one screw to the far right in the way of placing the protector. You can see the 2 proper nuts/bolts at the tip of the nut driver in the next 2 pictures below.



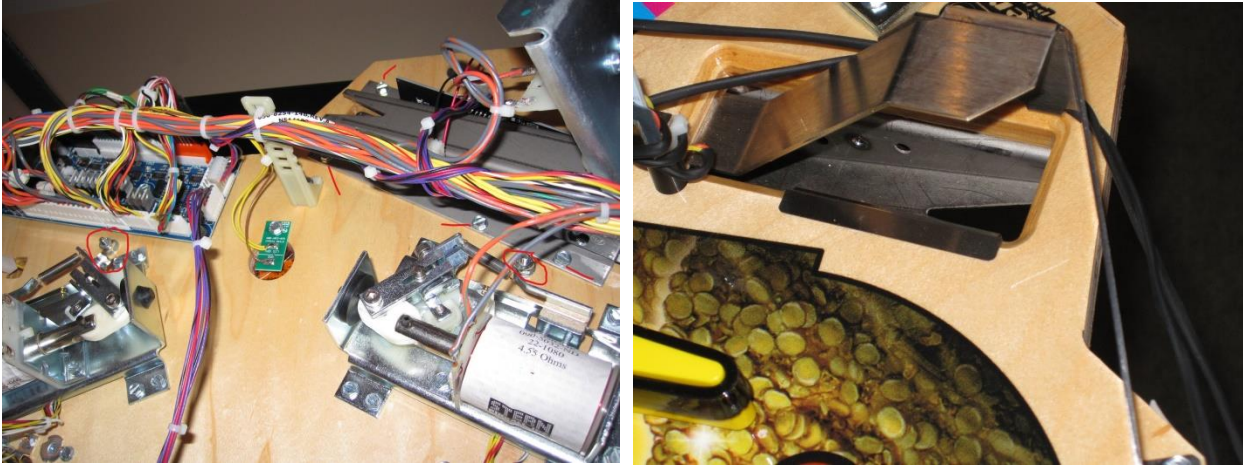
Use included alcohol swab around the VUK. Slip the protector in with the adhesive backing peeled off and then press it in place. Again, clean all the areas of the playfield that you normally can't access and then reassemble the VUK area.



Clean all the areas under the upper playfield. Clean or replace the rubber rings under there as needed and then re-install the upper playfield. The foam pads come in handy here to rest the upper PF on, on top of the Knight and everything while you thread the cables back through the back panel. When replacing the upper PF, it takes some finagling to get it in the right spot. It is useful to have the back of the main playfield propped up on the stiff foam pads so the cables don't get trapped and you can see where things are getting held up. Make sure the white plastic under the flipper bat is in the right position before you put in the upper PF. Replace all the hardware you removed to secure everything in place.

For the **Shooter Lane Protectors** and the **Outhole Drain Protector**, you will need to remove the apron. This is where you may need the footstool. There are 2 through the playfield bolts holding the apron. Remove the nuts and washers, being careful not to drop them into the bowels of the underside of the playfield from which they may never re-emerge. Also loosen the screws holding the ball trough to the underside of the playfield.

You do not have to remove the trough. Lower the playfield and remove the 2 screws holding the apron to the playfield hangers along the front edge. Lift the apron off and set aside.



Install the Outhole Drain protector by tilting in from the top and snap in place. Easiest piece in the set! Don't forget to retighten the screws on the trough.

Now look at the lower right corner of the top of the playfield. You will need to remove the short black wood rail and just loosen bottom 2-3 screws in the long far right metal rail. You don't have to remove any of these screws completely from the underside of the playfield. Just back them out so they just barely protrude through the top.

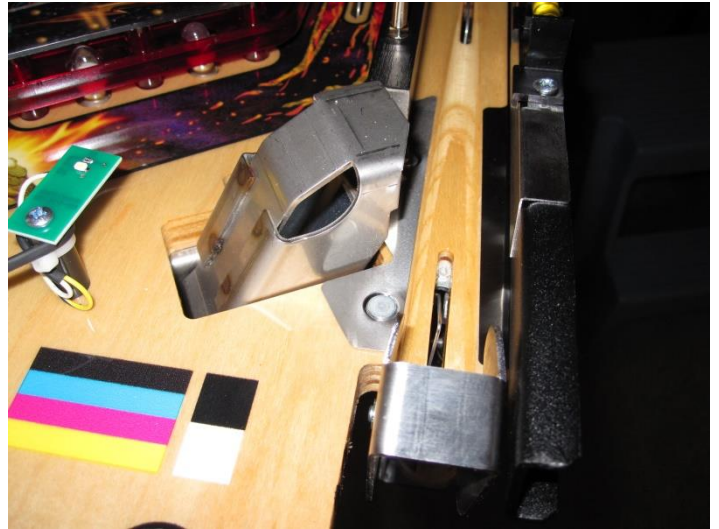


Once the short black wood rail is out of the way, the 2 flat top bolts to the left of the shooter lane (above and below the trough eject scoop in the picture above) need to come out. Remove the nuts on the bottom of the playfield and use the nail punch and hammer to tap them out far enough so you can remove them.



Now you can place the protector and replace the bolts and nuts with the protector in place. **DO NOT OVERTIGHTEN!** I have had one of these bolts snap in half without a lot of pressure plus you risk warping the protector. Just snug them down flush and you're good.

With the outer black metal rail loosened, you can easily slip the second protector in place, hooking the holes in the protector on the slightly protruding screws. Adjust the protector to proper alignment and retighten the screws on the metal rail. Replace the inner black wood rail and tighten the screws from the bottom of the playfield.



Replace the apron with the 2 bolts and 2 screws and **DONE!** Your Black Knight Sword of Rage is fully protected