

## KIPS vs EXUP servos

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**KR-1R**  
Premix Junkie



## KIPS vs EXUP servos

📅 Tue Sep 07, 2010 8:58 pm

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**I dont know if this will work yet**

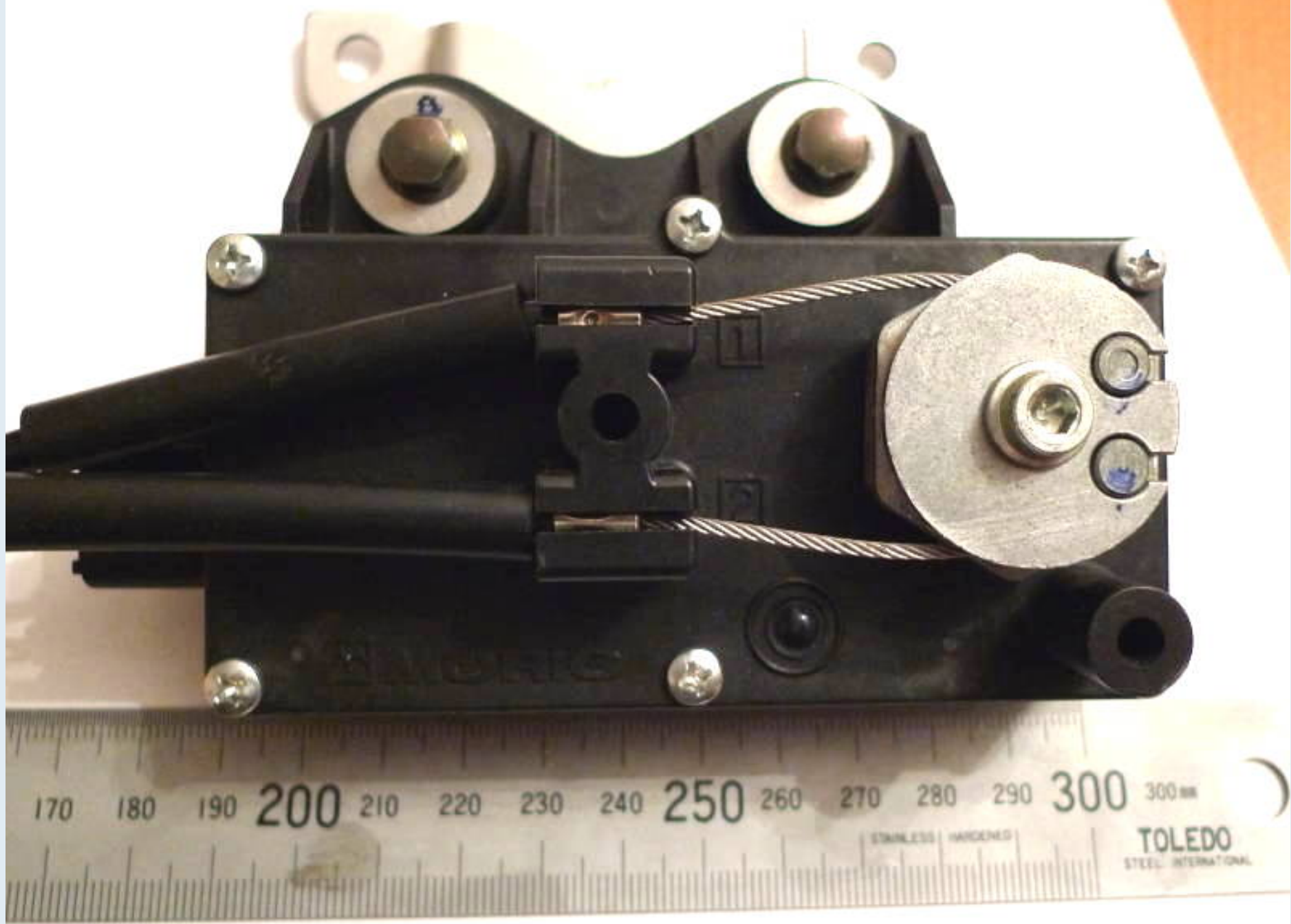
I had previously considered if something could be fabricated from a Tamiya gear box kit (worm drive version) or Radio Control servos – obviously donour part thats does equivalent job would be ideal



My main reason for looking into swapping the KIPS servo is to find something lighter to save weight

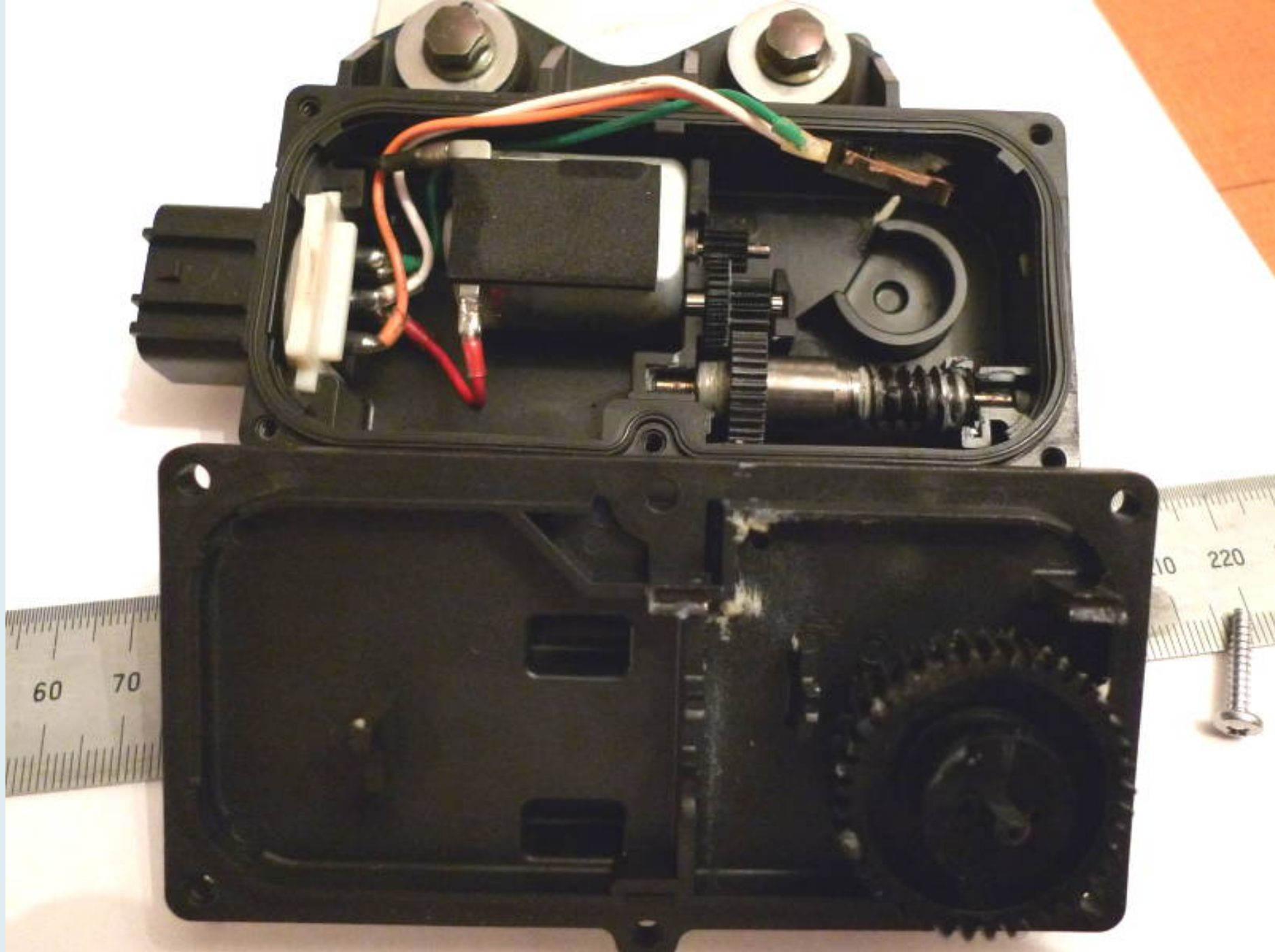
As many will know the Yamaha R1 and R6 (and older YZF) use a servo motor to open and close the EXUP valve in the exhaust collector for noise and power functions

The KR-1 KIPS servo (Exhaust Valve Operating Motor) weighs in at 884 grams (with two cables and bracket)  
The R6 servo with bracket (no cables) weighs only 291g **SAVE approx 0.55kg !**  
below is late model R6 servo made by MORIC



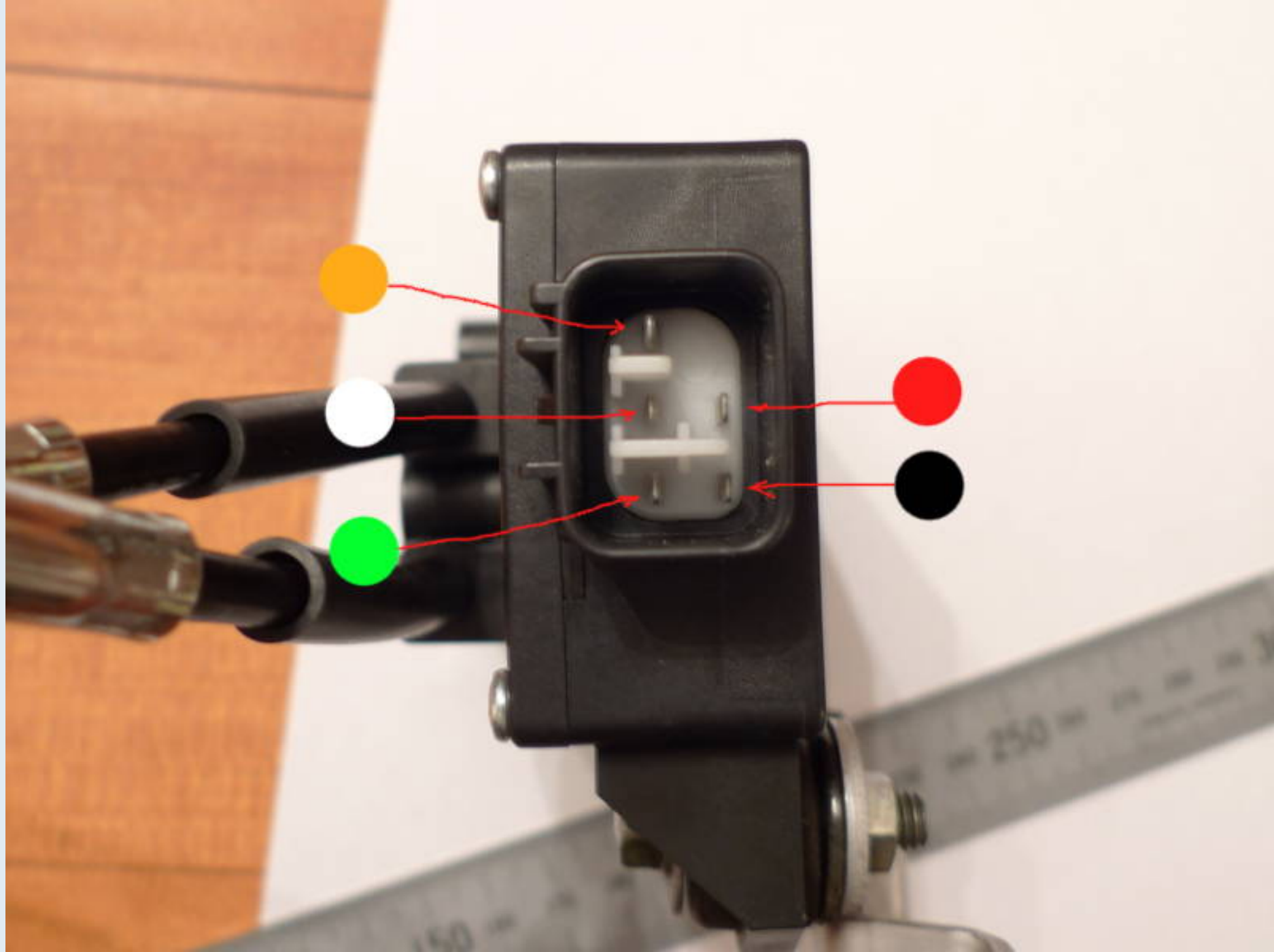
the assembly appears to have approx 34mm of cable actuation (push/pull 17mm), of course this could be altered if required by using a bigger cable pulley

inside the sealed (ABS?) enclosure is a simple small DC motor with reduction gears and worm drive on the final output gear attaches is a small rotary potentiometer with three takeoffs – the computer must recognise the position the pulley is in by the resistance from the three signals and supplies power to the motor in positive or negative direction by swapping the DC supply voltage?



The last 2 of 5 connection pins are +ve and -ve supplies to the motor itself

The KIPS servo connects to the CDI with 2 plugs - a 2 pin and a 3 pin connector  
I am assuming the 2 pin is + and - power for the drive,  
but I dont know if the other 3 connections are for resistance or some kind of internal microswitch  
perhaps somebody with sparky inclination will know the answer ( Borut? )

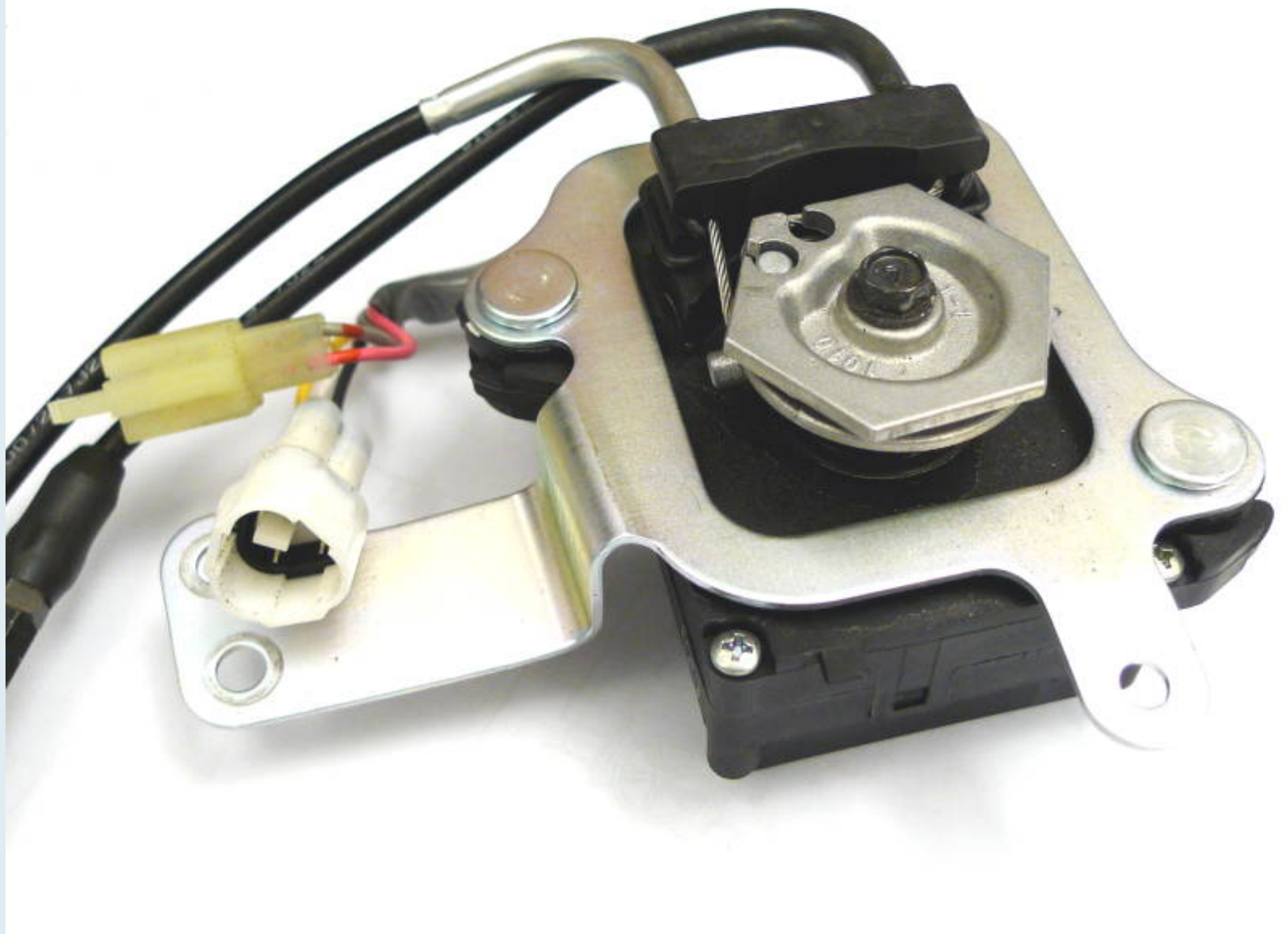


the KR-1 service manual would indicate the 3 pins are also resistances – so far looks to be promising part swap [-o<

DENSO servos...

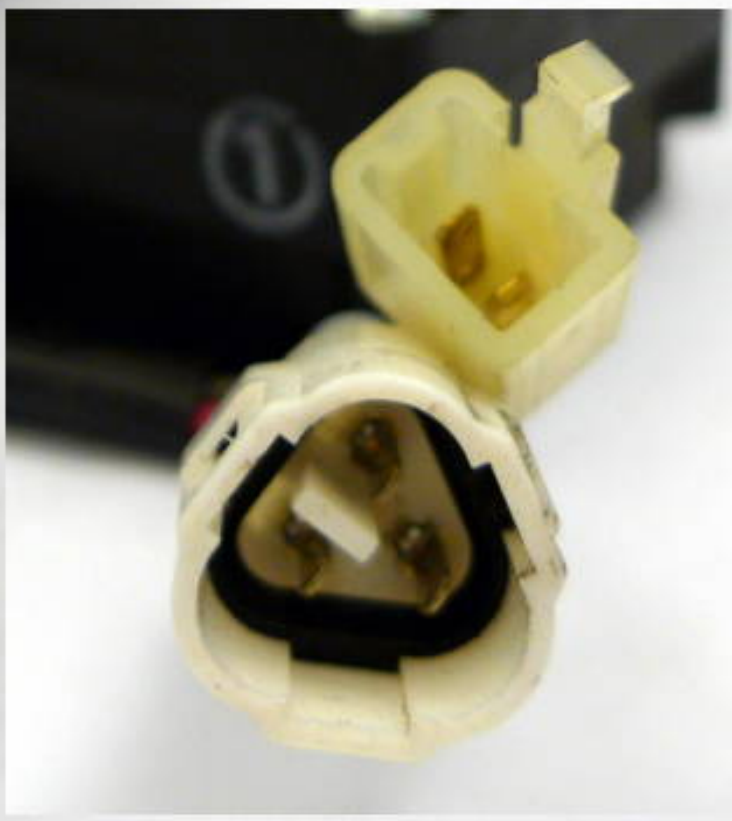
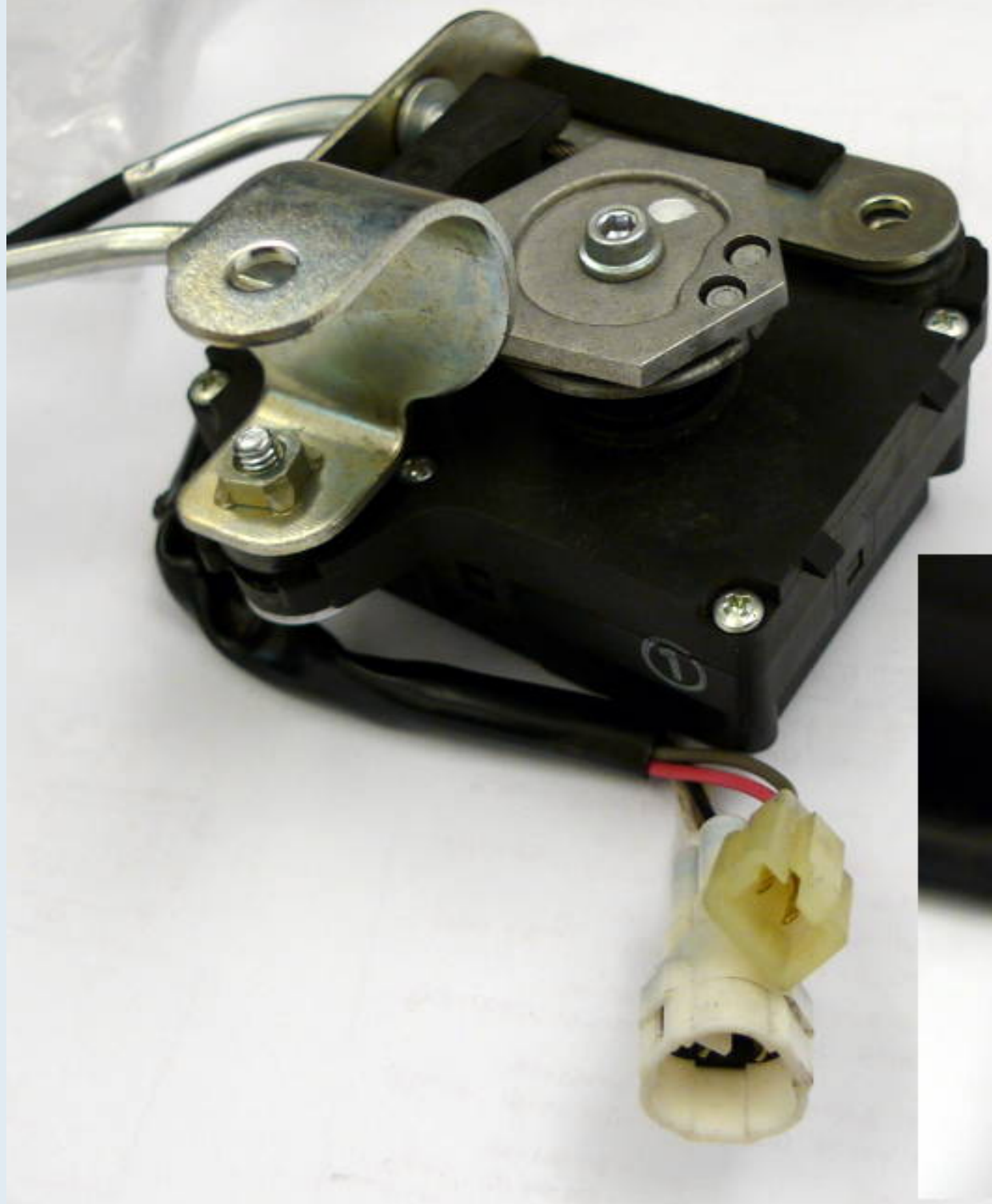
ZX-6R servo 407g (with bracket) save 434 grams



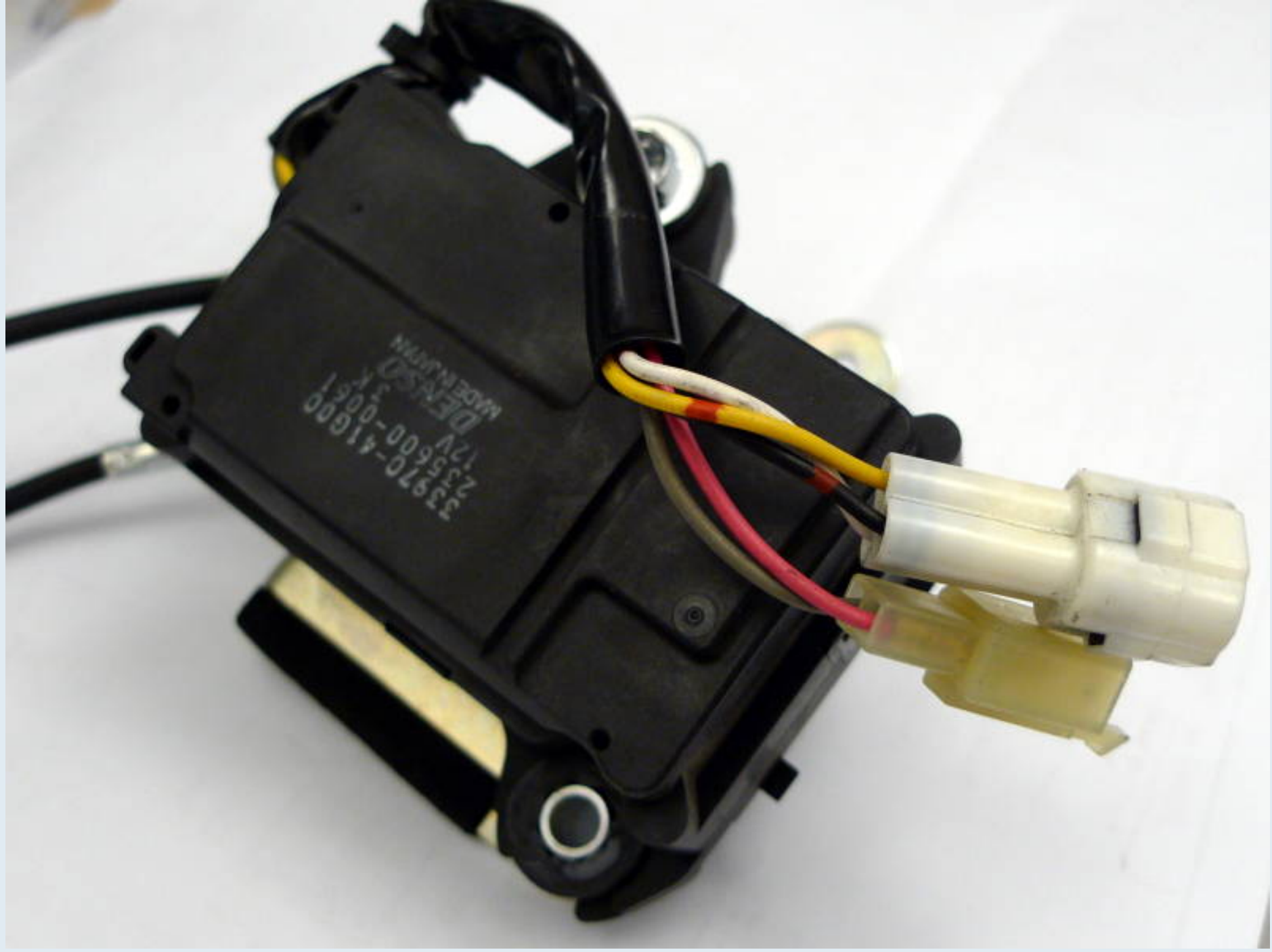




... similar to GSXR600/750 servo 320g (without bracket) - GSXR1000 servos complicated by a vacuum/pressure switch (not required)











Last edited by [KR-1R](#) on Wed Apr 06, 2011 9:13 pm, edited 3 times in total.

**TwoStroke Institute**  
Oil Injector




Wed Sep 08, 2010 7:35 am

Most 5 wire servo's are the same. Look at the Ignitech website and there is a schematic for the P2 and P2 race that show the servo operation. There should also be a schematic with the 'Ignijet' that will show the R1/6 exup servo wiring.

With a Ignitech/Zeel tronic there is no need to run the servo can do the same with a 12V spring loaded solenoid.

crochet & croquet

 **KR-1R**  
Premix Junkie



Wed Sep 08, 2010 10:03 am

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I guess a solenoid is lighter but would the servo be slower, a little more progressive transition into the power band?  
and there is something comforting about the servo test clocking the valves when you turn the key

measured R6 servo

Orange - White = 0 to 10Kohm

White - Green = 0 to 10kohm

Orange - Green = 10kohm constant (reference)

Last edited by KR-1R on Wed Sep 08, 2010 10:22 am, edited 1 time in total.

 **ScottaKR**  
Premix Junkie



Wed Sep 08, 2010 10:21 am


“ KR-1R wrote:

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I guess a solenoid is lighter but would the servo be slower, a little more progressive transition into the power band?

and there is something comforting about the servo test clocking the valves when you turn the key

I think that the solenoid may be fine for track use, but could easily damage the KIPS linkages etc over time due to it's sharp and sudden action. At least that's how it seems to me.

KR250 Tandem Twin (Naked)   
KR1 Red/White  
KR1S Track Bike (has been put on hold for now)  
ZXR750 H1 (Winter project)


**TwoStroke Institute**  
Oil Injector



Wed Sep 08, 2010 11:09 am

I thought the same thing but have since learned the go is to snap them shut/open as fast as possible. I have had a little design kicking round for a non-pv engines KIPS add on.

crochet & croquet

 **KR-1R**  
Premix Junkie



**weight saving**

Sat Jul 23, 2011 8:34 am

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NO to the R6/R1 servos...  
the GSXR/ZX6 servos have the right connections already  
save 400+g  
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DID 520ERV chain 1998g X-ring/O-ring  
DID 520ERT chain 1760g plain non-o-ring motorcross  
save 240g



**mgtkr1**  
Premix Junkie



Sat Jul 23, 2011 1:00 pm

what a good idea, the std kips motor is a house brick! dont earl exup servos have a ypvvs types setup? im clueless as it gets with electrical function but im intrested in this. also makes it easier when the servo breakdown just to find another exup one. surely theres more of them kicking about then there are kips servos. i never really got why the kips unit had to be so big and heavy, the ypvvs system is much lighter even if it requires a 2nd box.



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