

# V1.45

## Motor Mount Overhaul — Confirmed Motor Driven Rotation

---

### PURPOSE

- Improved motor mount from half plate to full rear plate
  - Grub screw retention for motor
  - Refine motor drive gear spacing
  - First attempt at sustained motor driven rotation
- 

### HOUSING

**Print Quality:** 8/10

**Issues:** No new issues

**Rating:** 8/10

---

### ROTOR

**Print Quality:** 8/10

**Issues:** No new issues

**Rating:** 8/10

---

### MOTOR DRIVE GEARS

**Motor Gear:** 10 teeth, module 0.80, 2.5mm bore

**Output Gear:** 50 teeth, module 0.80

**Issues:** Motor mount too close to 50 tooth gear — insufficient clearance

**Rating:** 7/10

---

### MOTOR MOUNT

**Upgrade:** Half plate 2-screw to full rear plate 4-screw

**Bore:** 24.5mm friction fit

**Issues:** Grub screw lacks sufficient grip without brass inserts

**Rating:** 6/10

---

### ECCENTRIC SHAFT

**Issues:** Rear gear insufficient friction to drive shaft. Bolt design inadequate for motor loads. Requires full redesign.

**Rating:** 5/10

---

## MOTION TEST

**Rotor Rotates:** Yes

**Full Orbit:** Yes

**Motor Driven Rotation:** CONFIRMED

**Smoothness:** 8/10

**Notes:** Motor driven rotation confirmed and looked great at speed

---

## LESSONS LEARNED

- Full rear plate mount significantly better than half plate
  - Brass inserts required for grub screw to grip in PLA
  - Eccentric shaft has been prototype standard too long — full redesign required
  - Rear drive gear needs proper keyed connection to shaft
  - Motor driven Wankel rotation confirmed achievable
- 

## CHANGES FOR NEXT VERSION

- Full redesign of eccentric shaft for motor driven loads
  - Rear drive gear properly keyed or fixed to eccentric shaft
  - Brass inserts for grub screw in motor mount
  - Recalculate motor mount spacing for correct gear mesh clearance
- 

## LOCKED PARAMETERS — CARRIED FORWARD

Generating Radius (R)	28mm
Eccentricity (e)	4mm
K Ratio	7 — RX-7 Proportion
Housing Width	64mm
Housing Height	48.7mm
Gear Module	0.80
Fixed Gear Teeth	20
Rotor Gear Teeth	30
Gear Ratio	3:2
Eccentric Shaft Offset	4mm
Drive Gear Module	0.80
Motor Gear Teeth	10
Output Gear Teeth	50
Drive Gear Ratio	5:1
Motor	YM2707 4.5VDC 100g/cm

