

**High-Volume Third-Party Remanufactured
Defender Steering Box**

Strip-Down and Component Analysis

02/12/2025

Functional check

Steering gear was cleaned sufficient to allow safe handling and set up for testing.

Steering gear mounted to test fixture, fitted with all required connectors and connected to hydraulic test rig

With test rig at idle pressure, Steering gear wound lock to lock to sweep fill. n.b unable to vent air from Steering gear from bleed screw. Completely rusted. Required was removal.

All following tests as per Adwest Varamatic Test Procedure,

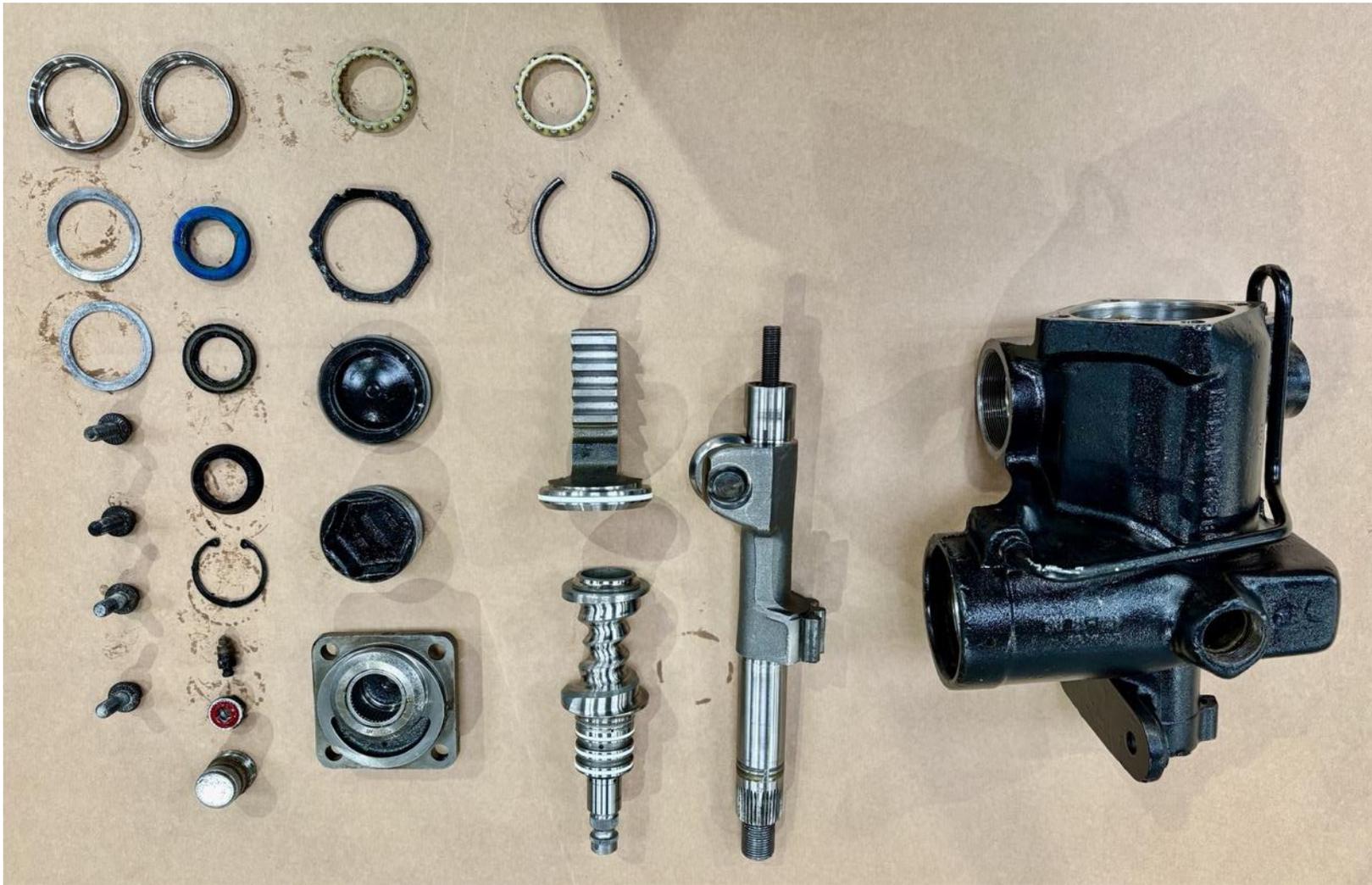
Proof pressure test. Steering gear pressure raised to proof test pressure both locks. Result Pass. No Seal failures observed

External Leakage test. Steering gear pressure raised to external leak test pressure both locks, and leakage observed under UV light (hydraulic oil containing UV dye). Result Pass. No leakage observed

Internal Leakage test. Steering gear pressure raised to internal leak test pressure both locks, and leakage observed by Flow gauge. Result Pass. Within specification

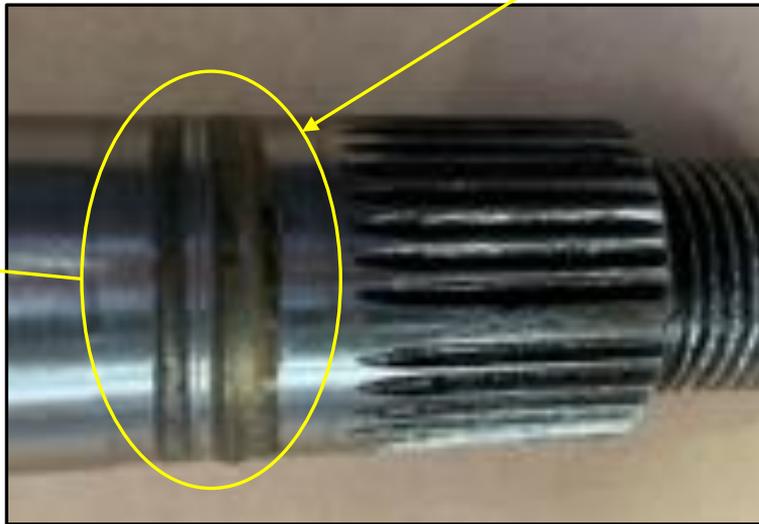
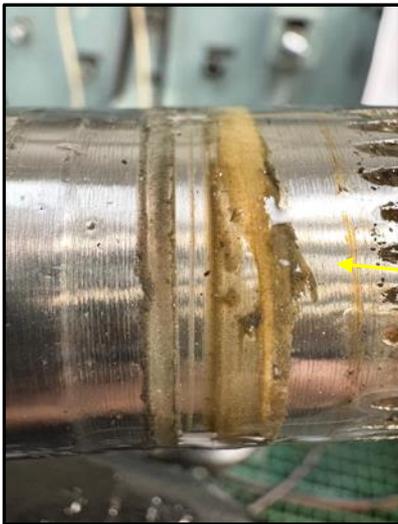
Valve balance test. Steering gear pressure raised to Valve balance test pressure both locks, and input torque observed. Result Pass. Within specification?

Third Party Recondition Defender Strip-Down Part View



Sector Shaft Condition - Not Acceptable

ADWEST STEERING



**Sector shaft long end
ground down undersize to
removed corroded area
Issue: Seal engagement
reduced**

**Box needle bearing
contact area reduced
Sealing compound used
which has hardened
assumed to increase
sealing**

Sector Shaft Output Seal And Shaft Dimensions

Sector Shaft Output And Backup Seals Suppliers Not Known. See Measured Results Below.

Sector Shaft Output Shaft Sealing Area Ground Diameter Undersize. Practice Not Recommended For Durable Sealing

			Spec	Actual	Actual in Seal Area
2653131	Sector Shaft	1	31.750-31.737	31.690-31.701	30.910-30.934
3596200	Output Shaft Seal	1	8.39-8.07	7.860-7.954	
		2	45.19-44.69	44.990-45.016	
		3	30.26 REF	29.967-30.023	
		4	46.27 REF	45.763-45.843	
101900	Seal Backup	1	44.40-44.32	44.848-44.929	
		2	32.13-32.05	31.69	
		3	28.45	27.920-28.011	

Sector Shaft Ground To Clean Up Sealing Area But The Seal used is Close to Original Sizes, Therefore Reduced Seal Engagement



Sector Shaft Condition

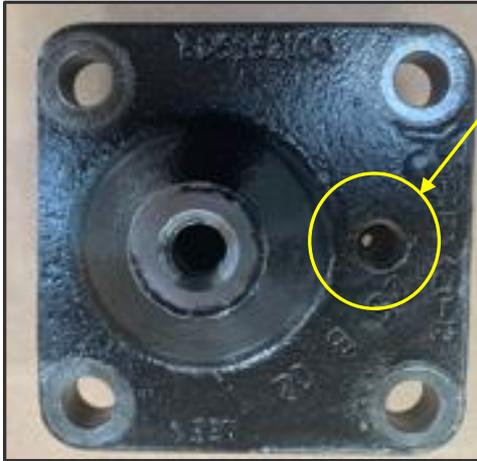
Follower Assembly No Issues



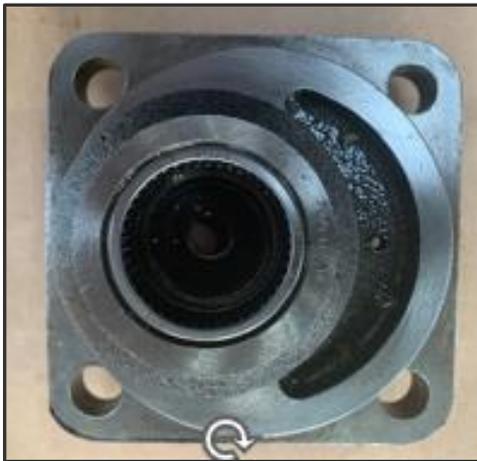
Sector Shaft Damaged Tooth. Possible Re-assembly Issue



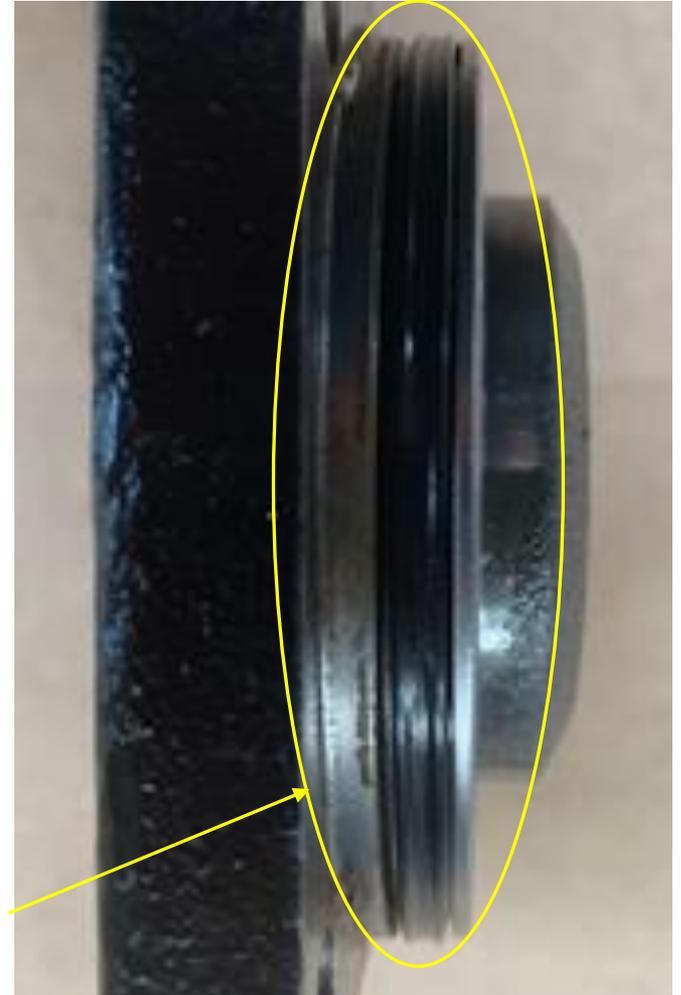
Cover Plate Condition - Not Acceptable



Bleed Screw and Hole Full Of Rust



Cover Plate Seal Is Not OE Specified Seal



Cam Adjuster Condition – Not Acceptable

**Square Section Seal
Is the Original Seal fitted. Not replaced With
New**



Piston Cap Condition – Not Acceptable



**Square Section Seal
Is the Original Seal fitted
Not replaced With New
Damaged**



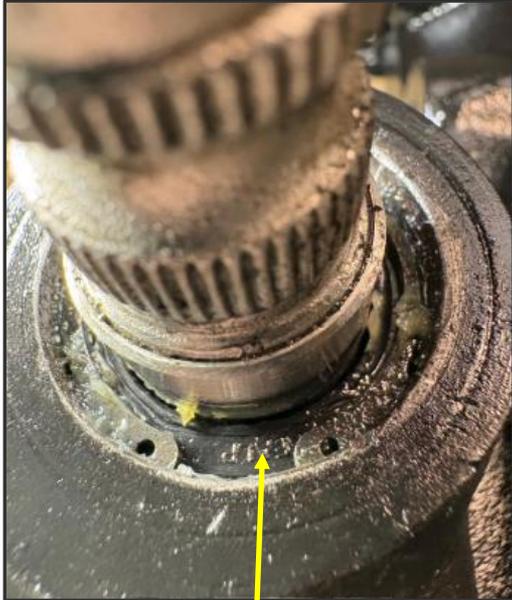
Piston Rack Condition – Not Acceptable

**Teflon Seal
Is the Original Seal fitted
Not replaced With New**

**Teeth Condition
Satisfactory**

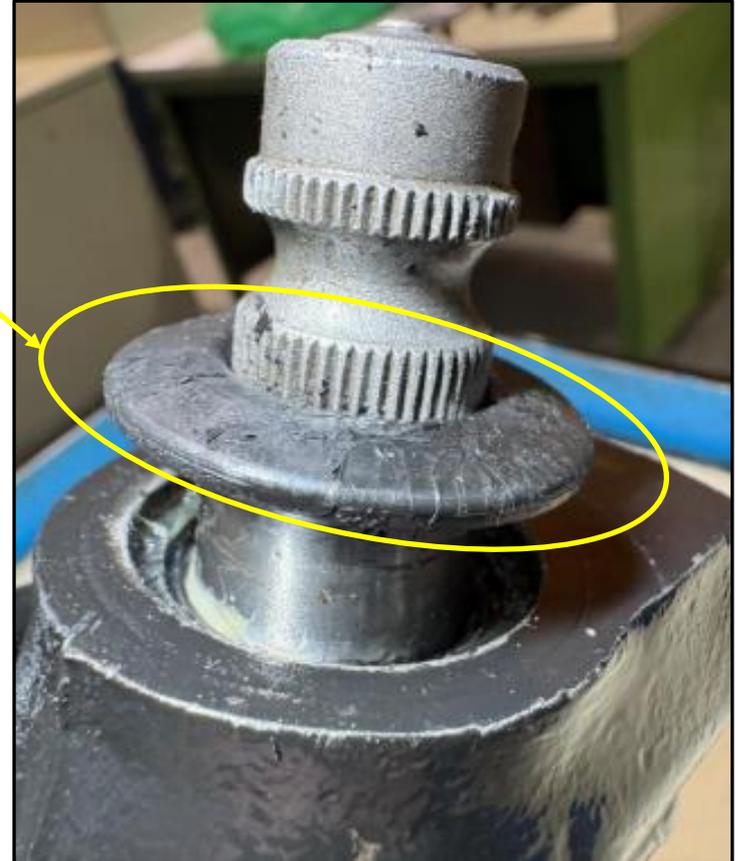


Input Seal Condition – Not Acceptable



**Input Seal
Damaged While
Dismantling
Therefore, No Judgment
Can Be On The Seal**

**Dirt Seal Is Not As OE
Specified
Not Acceptable**



Valve Assembly Condition

**Valve Assembly
General Condition is
Satisfactory**



**Teflon Seals
Is the Original Seal
fitted
Not replaced With
New**



Rack Pad And Adjuster Condition - Not Acceptable

**Rack Pad Adjuster
Original Seal Fitted Not Replaced With New Seal**



Valve Bearings Condition

**Valve Bearing
Condition Satisfactory**



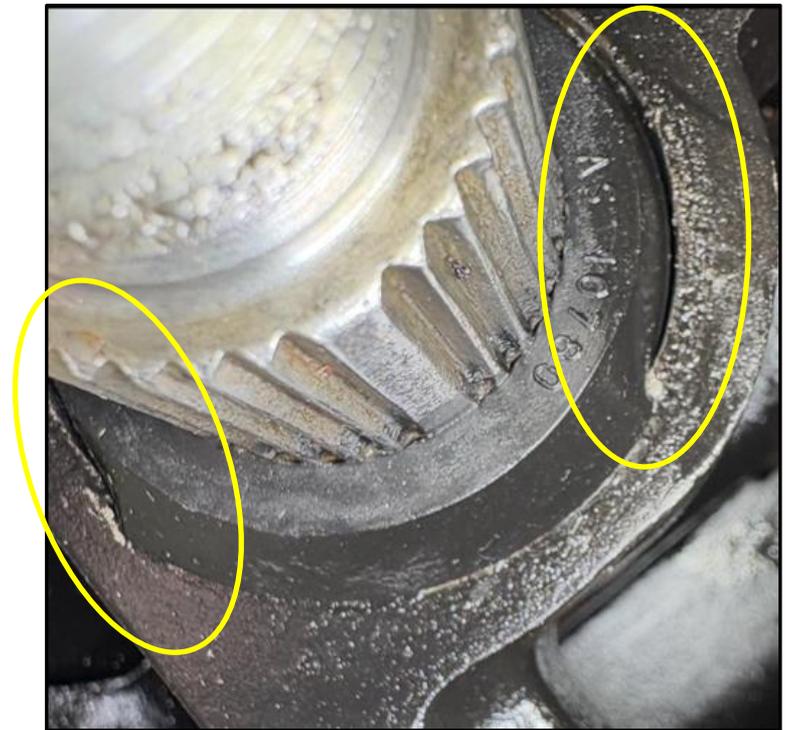
Output Shaft Dirt Seal Condition – Not Acceptable



**Dirt Seal
Supplier Not Known**



**Fitment Of Dirt Seal
Not Seated Correctly Allowing Dirt Ingress**



Output Shaft Seal Condition – Not Acceptable

**Sector Shaft Output Pressure Seal
Supplier Not Known
Hardened Unidentified Sealing Compound being used**



Output Shaft Seal Condition – Not Acceptable

**Sector Shaft Output Backup Seal
Supplier Not Known**



Box Housing Condition

ADWEST
STEERING

Box Housing General Condition Satisfactory

