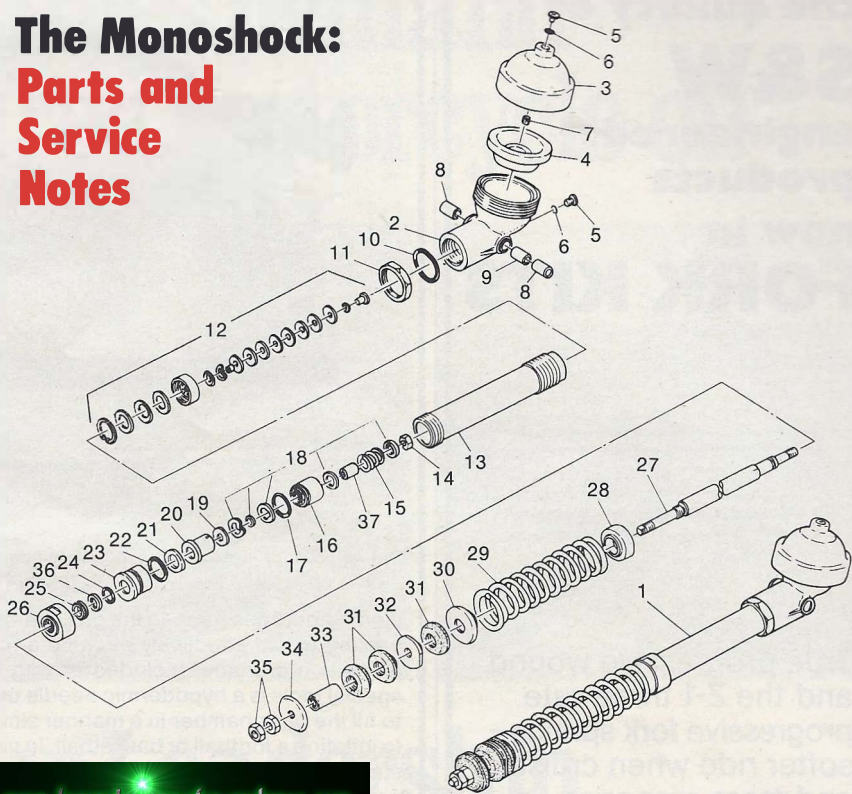


The Monoshock:

Parts and Service Notes



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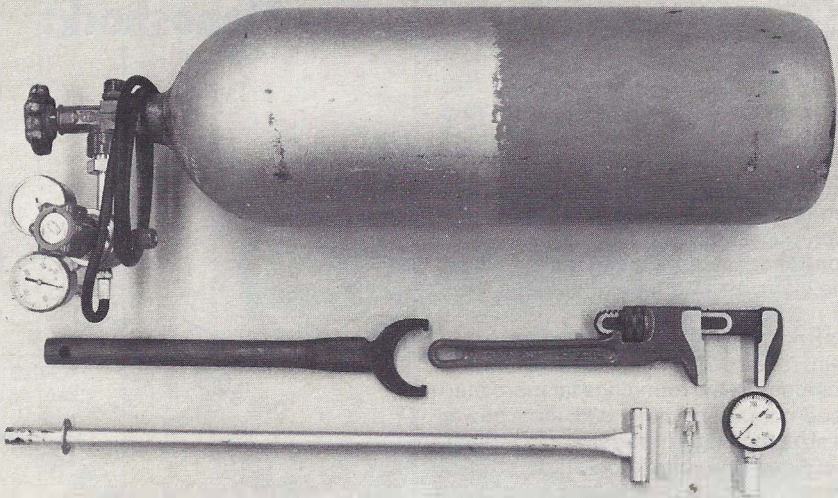
● In creating and marketing the monoshock suspension unit, Yamaha has leaped ahead of all other manufacturers in rear shock absorber sophistication. The monoshock assembly is a highly complex mechanism manufactured to precise tolerances. Intricate assembly procedures and the high-pressure gas loading procedures mean surgical cleanliness is a must when adjusting or servicing the monoshock unit. A particle of dirt, misaligned O-ring, loose circlip or improper bleeding of the hydraulic fluid can render the shock damper useless. In total, 43 parts make up the monoshock damper and about half of them are critical internal pieces.

Other than spring replacement, any adjustment or periodic maintenance must be done by a trained (preferably by Yamaha's monoshock service clinic) dealer mechanic. In addition to the surgical cleanliness, detailed knowledge and special parts needed to care for the damper, a number of very special tools are required to properly service the unit. For all intents and purposes, adjustment and maintenance are not chores that can be done in the field or at home by the owner. Improper servicing of the monoshock damper could ruin the unit.

The cast aluminum gas chamber is designed to contain a maximum pressure of 415 psi. Excessive pressure could cause an internal or external leak, or at worst, a failure and explosion of the casting. Equally important is that the chamber be filled only with inert nitrogen gas. Yamaha says the use of any other gas (oxygen, acetylene, etc.) can cause an explo-

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ITEM	QTY.	RETAIL PRICE
1. Rear Cushion Assembly	1	\$154.06
2. Housing, membrane	1	42.00
3. Cap, housing	1	24.54
4. Membrane	1	6.40
5. Screw, bind	2	.12
6. O-ring (1.9-5.8)	2	1.16
7. Valve, rubber	1	1.00
8. Bush, high metal solid	2	.98
9. Collar (12.2-14.8-26)	1	1.20
10. O-ring (3.5-41.7)	1	.56
11. Nut, ring	1	3.14
12. Base Valve Assembly	1	17.20
13. Cylinder, case	1	39.10
14. Nut, hexagon	1	.44
15. Spring	1	NA
16. Piston	1	11.60
17. O-ring (3.5-30.7)	1	.56
18. Piston Valve Set	1	4.68
19. Washer, plate	1	.78
20. Stopper	1	4.20
21. Damper 1	1	1.52
22. O-ring (3.5-30.7)	1	.48
23. Housing, seal ring	1	8.76
24. O-ring (3.5-21.7)	1	.48
25. Seal, ring	1	2.04
26. Cap, case	1	13.08
27. Rod, piston	1	40.31
28. Seat, spring	1	5.60
29. Spring 1 (rate K 4.1)	1	18.76
30. Spring 1 (rate K 4.2)	1	18.76
31. Spring 1 (rate K 3.8)	1	18.76
32. Seat, spring	1	1.44
33. Damper 2	3	1.54
34. Nut	1	10.58
35. Collar, distance	1	2.64
36. Plate 1	1	.98
37. Nut, hexagon	2	.90
38. Seal, ring	1	.52
39. Spacer	1	NA



The monoshock special tools include nitrogen tank, gauges, regulator, hypo needle and wrenches.

sion. Should this happen the gas chamber casting would effectively become a fragmentation grenade. Included among the special tools is a hypodermic needle used to fill the gas chamber in a manner similar to inflating a football or basketball. In most states the possession of a hypodermic needle is forbidden unless you have a medical prescription.

Our interest in servicing the monoshock unit came as a result of attempting to have the gas pre-load pressure changed in one of our test machines. Because our shop is 100 miles from the distributor, we elected to save time by having a dealer perform the task. After calling nine Yamaha shops we found only one who could and would service our unit. The cost of changing oil and gas pressure (Yamaha's recommended service interval for oil, gas and O-ring replacement is after every eight races) was a staggering \$55.00, and didn't include O-rings. Additionally, all of our Yamaha dealer contacts informed us that no parts—particularly the O-rings—were available. Inquiring into parts cost usually got us a reply of not available, or figures that were terribly high.

A day was spent at the distributorship going through the monoshock service clinic procedure and double-checking parts availability and cost. As we found at Yamaha, the components are indeed in stock (though some are in limited quantities), and the retail prices are, for the most part, reasonable. The attached parts summary and retail price listing show their costs at the time of this writing. Any fluctuations in the retail prices, if any, should be minor.

The importance of this information is to clarify the service and parts situations that an owner will have to deal with. Service is definitely a dealer-level task. Only selected dealers have the service knowledge and special tools in their possession (about 400 at this time). You will have to seek out these dealers for servicing. Parts can be ordered by any Yamaha dealer and should, with rare exception, be in stock at the price ranges printed herein. Because the Yamaha monoshock unit is so complicated, careful attention to maintenance is essential to minimize even the slightest chance of damage—to the unit or you. Such is the price of progress.

The intricacy of the monoshock unit is self evident. Our test bike suffered a gas pressure leak late on.

