Hino Head Re-torqueing Procedure

This is an easy job. 4 cylinder shown.

It does require a decent torque wrench, and a special tool to reach the head bolts that are tucked underneath the rocker-arm shaft.

1- Remove the valve cover (AKA rocker-arm cover). This is secured with six 12mm bolts on the 4 cylinder.
2- There are 4 rows of 14mm 12-point bolts that secure the head. The black lines in the first attached picture show the location of each row. 2 rows are outside the valve cover, and 2 rows are concealed beneath the valve cover.
3- The 5th row, on the exhaust manifold side, are called "additional head bolts", and have a different torque rating of 33-36 ft*lbs.
4- Locate the "number 1" head bolt as demonstrated in the attached pic from the manual. Back this bolt out 1/8 to 1/4 turn. It is re-tightened to a torque of 95-101 ft*lbs of torque.
5- Follow the same procedure for the rest of the head bolts in sequence.
6- The "additional head bolts" are then retorqued, in sequence, as shown in the manual.
7- Replace the valve cover (Have you adjusted the valves?…)

Notes on using a lengthening extension on a torque wrench…

The special tool as demonstrated was generously loaned to me by Smitty477. Since the tool adds another 1" to the length of the torque wrench, this has to be accounted for. Regular socket drive extensions do not need to be compensated for.

There is a very simple formula that is used to adjust torque settings, although it looks a bit complicated if you don't use math formulas regularly. The additional length of the tool effectively adds more torque, so the wrench must be dialed down a bit.

I have rewritten this formula as supplied with the wrench to save me from going and getting the photocopy. It is not brain surgery, though.

$T(E) = T(W) ((L+E) / L)$

Where
T(E) is the effective torque at the bolt
T(W) is the torque setting on the wrench
L is the length of the wrench from the drive to middle of the handle
E is the length of the extension.

The tool demonstrated has a length of 1", and my torque wrench is 17" long.

We can re-write (L+E) / L as (17 + 1) / 17 or 18/17 = 1.06

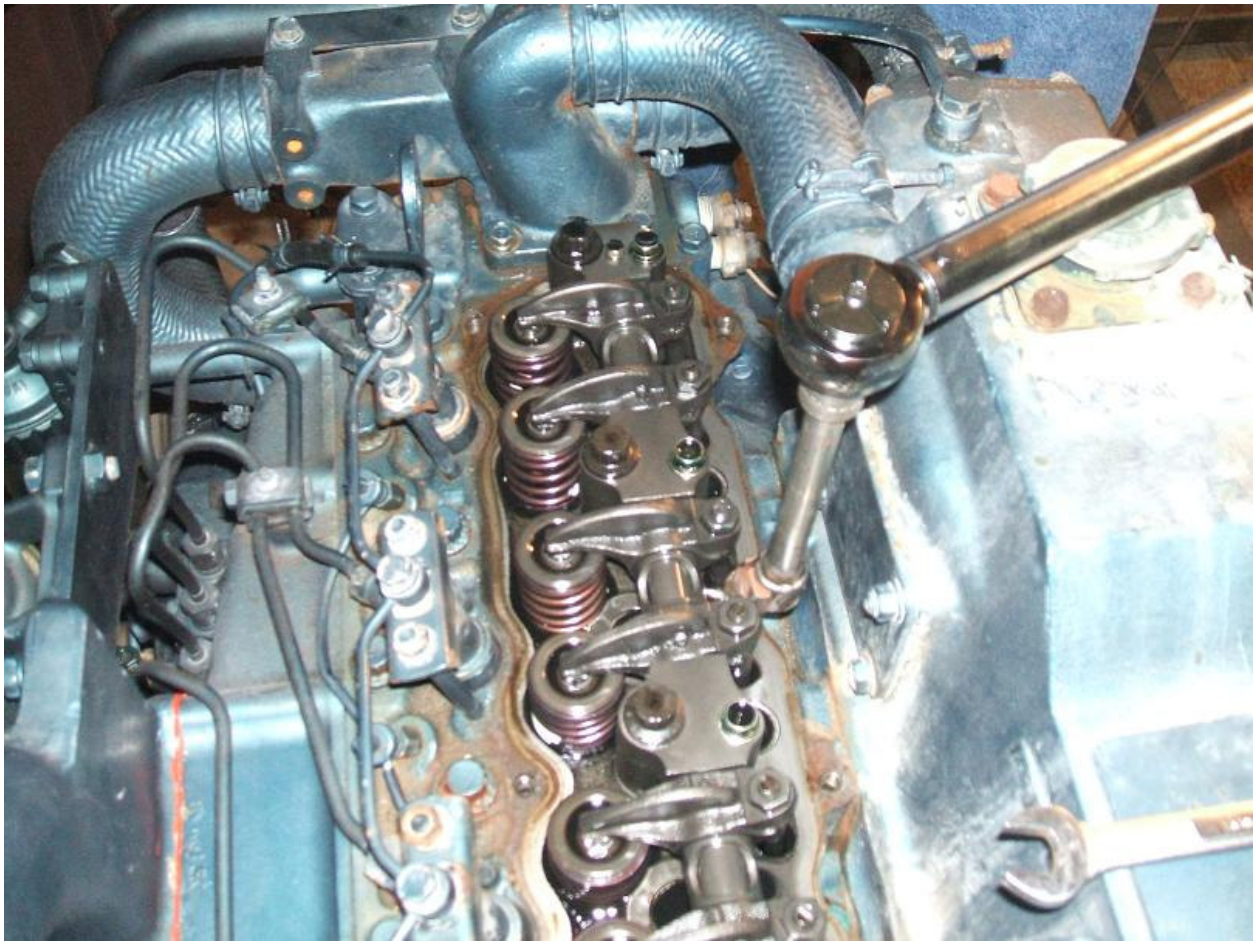
If we want a T(E) of 100 ft*lbs…

The formula is rewritten as 100 = T(W) * 1.06 or 100 / 1.06 = T(W)

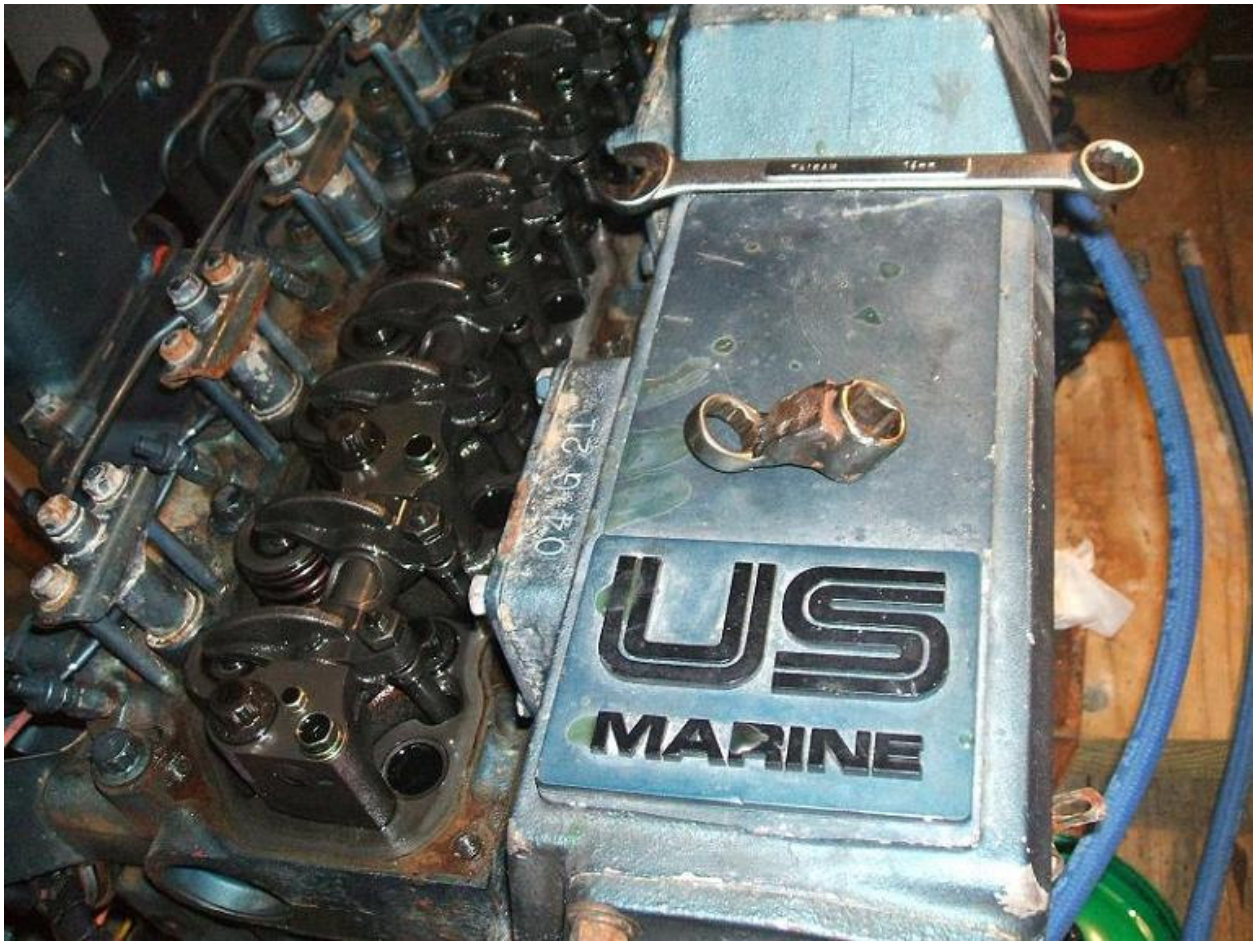
The division tells us to set the wrench at 94.3 ft*lbs or torque.

Much easier than it looks.

Head Bolts



Torqueing Bolts



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