Palindromes obtained concatenating the prime factors of a Poulet number and adding to the number obtained its reversal

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Abstract. In this paper I make the following two conjectures: (I) There exist an infinity of Poulet numbers P such that D + R(D), where R(D) is the number obtained reversing the digits of D which is the number obtained concatenating the prime factors of P, is a palindromic number (example: such a Poulet number is P = 12801; the prime factors of 12801 are 3, 17 and 251, then D = 317251 and D + R(D) = 317251 + 152713 = 469964, a palindromic number); (II) There is no a number obtained concatenating the prime factors of a Poulet number to be a Lychrel number.

Conjecture I:

There exist an infinity of Poulet numbers P such that D + R(D), where R(D) is the number obtained reversing the digits of D which is the number obtained concatenating the prime factors of P, is a palindromic number.

The sequence of palindromes obtained this way:

: 2442 (341 = 11*31; 1131 + 1311 = 2442);
: 6996 (645 = 3*5*43; 3543 + 3453 = 6996);
: 12221 (2047 = 23*89; 2389 + 9832 = 12221);
: 84648 (2821 = 7*13*31; 71331 + 13317 = 84648);
: 46264 (4681 = 31*151; 31151 + 15113 = 46264);
: 86668 (6601 = 7*23*41; 72341 + 14327 = 86668);
: 44644 (10261 = 31*331; 31331 + 13313 = 44644);
: 469964 (12801 = 3*17*251; 317251 + 152713 = 469964);
: 864468 (13741 = 7*13*151; 713151 + 151317 = 864468);
: 254452 (13981 = 11*31*41; 113141 + 141311 = 154452);
(...)

Notes:

For 10 from the first 30 Poulet numbers was obtained a palindrome through this operation!

For another 8 from the first 30 Poulet numbers (i.e. 561, 1105, 1729, 1905, 3277, 4371, 5461, 8481) is obtained a palindrome in just two iterations of the operation "reverse and add" (example: such a Poulet number is P = 8481; the prime factors of 8481 are 3, 11 and 257, then D = 311257 and D + R(D) = 311257 + 752113 = 1063370 and 1063370 + 733601 = 1796971, a palindromic number).

Note that larger Poulet numbers that have the property showed are not hard to find; example:

: Poulet number 999801636961 = 113*197*421*106681;
113197421106681 + 186601124791311 = 299798545897992.

Note also the interesting “almost palindromes” obtained through this operation; examples:

: Poulet number 999814392501 = 3*101*107*431*71551;
310110743171551 + 155171347011013 = 465282090182564;

: Poulet number 999986341201 = 17*41*43*331*100801;
174143331100801 + 108001133341471 = 282144464442272.

Conjecture II:

There is no a number obtained concatenating the prime factors of a Poulet number to be a Lychrel number.