Accrued Interest Calculation on a U. S. Treasury Bond

Example: $200,000 U.S. Treasury 7 7/8% Bond Maturing in 2002 purchased on
October 23, 1992, at a dollar price of 105-20 with a Yield to Maturity of
7.083% with the bond originally being issued at 11/15/1977.

Calculation:

If the bond was issued on November 15, 1977 then this U.S. Treasury issue pays coupon
income on November 15th and May 15th each year until maturity [i.e. every six months
from the exact date of issue].   The purchase price or basis in this transaction is:

[$105 + 20/32] x 10   x 200 bonds = $211,250.00
  {Value of one $1,000 bond times the number of bonds which is 200}

However, the purchaser of this bond must also pay the interest that has accrued since the
payment of the last coupon of May 15th 1992.   In other words the seller is entitled to the
that part of the interest that will be received on November 15th that represents the interest
that has been built up from May 15th 1992 to October 23, 1992 [the date of sale].

So accrued interest is the apportioned interest to the seller of the next coupon that
represents interest earned from the last coupon payment date up to the date of sale.

Step 1: Calculate the number of days between coupon payment dates. This can be done
using the date arithmetic feature on an Excel spreadsheet or using the date function on an
HP 12C. Unfortunately the HP 10B don't have this function built in, but the arithmetic is
not too hard to do manually.

May 15 to Nov 15:	May=➡ 31-15 =	16 days
	June	30
	July	31
	Aug	31
	Sept.	30
	Oct.	31
	Nov➡	15
Total # Days between Coupons		184 days

Step 2: Find the number of days between the sale date and the next coupon date:
i.e., October 23rd and November 15th:

Oct.=➡ 31-23	8 days
Nov➡	15 days
Total # days earned by the buyer	23 days

Step 3: Find the number of days between the last coupon date and the sale date:
i.e., May 15th to October 23rd :

184 days total – 23 days to the buyer = 161 days earned by the seller

Step 4: Apportion the amount of the Nov. 15th coupon income to the seller based on the relative number of days the seller earned over the total number of days:

Accrued interest to the seller =   161/184   x $200,000 x .07875/2 = $6,890.625
                                                             = $6,890.63

So the buyer will pay to the seller:

          Basis or Principal Amount ====➔ $211,250.00
          Accrued Interest ========➔   6,890.63
          Purchase Price =============➔ $218,140.63

Note: At the end of the year the buyer will receive a 1099 that shows receipt of $200,000 x .07875/2 in interest or $7,875. However, on the buyer's tax return he would present interest as:

Coupon Income on U.S. Treasury 7 7/8% Bond 2002 ==➔ $7,875.00
Less: Accrued Interest to the Seller of 7 7/8% Treas. 02 ➔   6,890.63
Interest Income $ 984.37

The Seller would have to report accrued interest in the amount of $6,890.63 on Schedule B as coupon income.

This same type of adjustment process takes place in the event a seller of a U.S. Bond call decides to deliver into the contract to cover a futures position on the Chicago Board of Trade [i.e., different bonds will have differing coupon amounts and days on interest earned on them which will be taken into account when adjusting for what is required to fully deliver into a contract].