```
upto_int_wf  THM

⊢  ∀i,j:ℤ. upto(i;j) ∈ ℤ List
| by Assert (∀d:ℕ, i,j:ℤ. j-i = d ⇒ upto(i;j) ∈ ℤ List)
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| .....assertion .....
| ⊢  ∀d:ℕ, i,j:ℤ. j-i = d ⇒ upto(i;j) ∈ ℤ List
| | by InductionOnNat THEN UnivCD THEN (RecUnfold `upto` 0)
| |    THEN
| |    SplitOnConclITE
| |    THEN
| |    (Try (Complete Auto))
| |
| .....truecase .....
| 1. d : ℤ
| 2. 0<d
| 3. ∀i,j:ℤ. j-i = d-1 ⇒ upto(i;j) ∈ ℤ List
| 4. i : ℤ
| 5. j : ℤ
| 6. j-i = d
| 7. i<j
| ⊢  [i / upto(i+1;j)] ∈ ℤ List  by Analyze THEN EasyHyp
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. 1. ∀d:ℕ, i,j:ℤ. j-i = d ⇒ upto(i;j) ∈ ℤ List
. ⊢  ∀i,j:ℤ. upto(i;j) ∈ ℤ List  by UnivCD THEN (Decide (i≤j))
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. | 1. ∀d:ℕ, i,j:ℤ. j-i = d ⇒ upto(i;j) ∈ ℤ List
. | 2. i : ℤ
. | 3. j : ℤ
. | 4. i≤j
. | ⊢  upto(i;j) ∈ ℤ List  by (InstHyp [j-i] 1) THEN EasyHyp
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. . 1. ∀d:ℕ, i,j:ℤ. j-i = d ⇒ upto(i;j) ∈ ℤ List
. . 2. i : ℤ
. . 3. j : ℤ
. . 4. ¬i≤j
. . ⊢  upto(i;j) ∈ ℤ List
. .   by (RecUnfold `upto` 0) THEN SplitOnConclITE
END
```