```
es-loc-rcv  THM

⊢  ∀es:ES, e:E, l:IdLnk, tg:Id.
|  kind(e) = rcv(l; tg)
|  ⇒
|  loc(e) = destination(l) & loc(sender(e)) = source(l)
| by Auto THEN Assert isrcv(e)
|
|\
| .....assertion .....
| 1. es : ES
| 2. e : E
| 3. l : IdLnk
| 4. tg : Id
| 5. kind(e) = rcv(l; tg)
| ⊢  isrcv(e)
|   by Unfold `es-isrcv` 0 THEN HypSubst' -1 0
|      THEN
|      Unfolds [`rcv`;`isrcv`] 0
|      THEN
|      Reduce 0
|
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. 1. es : ES
. 2. e : E
. 3. l : IdLnk
. 4. tg : Id
. 5. kind(e) = rcv(l; tg)
. 6. isrcv(e)
. ⊢  loc(e) = destination(l) & loc(sender(e)) = source(l)
. | by Unfold `guard` 0 THEN Analyze 0 THEN SupposeNot
. |
. |\
. | 1. es : ES
. | 2. e : E
. | 3. l : IdLnk
. | 4. tg : Id
. | 5. kind(e) = rcv(l; tg)
. | 6. isrcv(e)
. | 7. ¬loc(e) = destination(l)
. | ⊢  loc(e) = destination(l)
. |   by Inst_ES_Axiom [e] 13 THEN Unfold `es-lnk` -1
. |      THEN
. |      HypSubst' -4 -1
. |      THEN
. |      Unfolds [`lnk`;`rcv`] -1
. |      THEN
. |      Reduce -1
. |
. .\
. . 1. es : ES
. . 2. e : E
. . 3. l : IdLnk
. . 4. tg : Id
. . 5. kind(e) = rcv(l; tg)
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. . 6. isrcv(e)
. . 7. ¬loc(sender(e)) = source(l)
. . ⊢  loc(sender(e)) = source(l)  by Inst_ES_Axiom [sender(e);l] 14
. . |
. . 1. es : ES
. . 2. e : E
. . 3. l : IdLnk
. . 4. tg : Id
. . 5. kind(e) = rcv(l; tg)
. . 6. isrcv(e)
. . 7. ¬loc(sender(e)) = source(l)
. . 8. sends(l;sender(e)) = nil
. . ⊢  loc(sender(e)) = source(l)
. . | by Inst
. . |    Thm* ∀the_es:ES, e:E.
. . |         isrcv(e) ⇒ index(e) ∈ ℕ||sends(lnk(e);sender(e))||
. . |    {es_DASH_index_wf}
. . |    [es;e]
. . |    THEN
. . |    Unfold ‘es-lnk‘ -1
. . |    THEN
. . |    HypSubst’ -5 -1
. . |    THEN
. . |    Unfolds [‘lnk‘;‘rcv‘] -1
. . |    THEN
. . |    Reduce -1
. . |
. . 1. es : ES
. . 2. e : E
. . 3. l : IdLnk
. . 4. tg : Id
. . 5. kind(e) = rcv(l; tg)
. . 6. isrcv(e)
. . 7. ¬loc(sender(e)) = source(l)
. . 8. sends(l;sender(e)) = nil
. . 9. index(e) ∈ ℕ||sends(l;sender(e))||
. . ⊢  loc(sender(e)) = source(l)
. . | by Subst (||sends(l;sender(e))|| ~ 0) -1
. . |
. . 1. es : ES
. . 2. e : E
. . 3. l : IdLnk
. . 4. tg : Id
. . 5. kind(e) = rcv(l; tg)
. . 6. isrcv(e)
. . 7. ¬loc(sender(e)) = source(l)
. . 8. sends(l;sender(e)) = nil

. . 9. index(e) ∈ ℕ||sends(l;sender(e))||
. . ⊢  ||sends(l;sender(e))|| = 0  by HypSubst -2 0 THEN Reduce 0
END
```