LAMPIRAN
Listing Program

```fortran
subroutine REP_Recovery (x,d,vmx,vmy,vmxy,Txz,Tyz,k ,nopatc
& elpatch.nonode,xmax,xmin.ymax,ymin,scm,sct)

use msimsl
implicit none
include   'eldata.h'
include   'cdata.h'
include   'sdata.h'
include   'iofile.h'
include   'pointer.h'
include   'upointer.h'
include   'comblk.h'
include   'qsieta.h'

integer   nopatch,elpatch(numnp,numel)
integer   nonode(numnp,numnp),kj,i,j,k,m,chknode,qkj,ii,jj
real*8  x(ndm,numnp),d(*),xmax(numnp),xmin(numnp),ymax(numnp)
real*8  ymin(numnp),xl(2,4),vmx(4,numel),vmy(4,numel),vmxy(4,numel)
real*8  Txz(4,numel),Tyz(4,numel),Mih,scm(3),sct(2),Mm(5),xw,yw
real*8  xx(4),yy(4),bb(3,12),bs(2,12),B(5,12),Hi(12,8),Fi(12,1)
real*8  He(12,8),Fe(12,1),P(1,8),a(8,1),Pe(1,8),B1i(12,1),HtHi(8,8)
real*8  HtFi(8,1),iHtH(8,8),HtHe(8,8),HtFe(8,1),detj,mmm(1,1)
common /vjacq/detj

qkj=0 ; Mm=0
do j=1,nopatch            ! tiap patch
  chknode=0 ; k=1
  do while (nonode(k,j) .ne. 0)              ! tiap node dalam patch
    if (nonode(k,j) .eq. kj) then
        chknode=1 ; exit
    endif
    k=k+1
  end do
  if (chknode .eq. 1) then        ! jika node ada dalam patch
    qkj=qkj+1
    call Cor(x(1,kj),x(2,kj),xmax(j),xmin(j),ymax(j),ymin(j),xw,yw)
    call getP(P,xw,yw)
    do i=1,5     ! tiap komponen gaya dalam (Mx, My, Mxy, Txz, Tyz)
      Hi=0 ; Fi=0 ; HtHe=0 ; HtFe=0 ; k=1
      do while (elpatch(j,k) .ne. 0)          ! tiap elemen anggota patch
        call geohookean1(x,d,mr(np(33)),elpatch(j,k),xl,flag)
        call Patching(xl,kj,hr(up(3)),hr(up(4)),elpatch(j,k)
        ,hr(up(17)),xx,yy)    ! hitung koord titik Gauss
        He=0 ; Fe=0
        do m=1,4 ! tiap titik Gauss
          call Cor(xx(m),yy(m),xmax(j),xmin(j),ymax(j),ymin(j),xw,yw)
          call getP(Pe,xw,yw)
          call getB(xw,yw,bb,bs,B)
          do ii=1,12 ; B1i(ii,1)=B(i,ii)*detj ; end do
          He=He+matmul(B1i,Pe)     ! He=sum(Bt 1i P detj)
          call getMih(vmx(m,elpatch(j,k)),vmy(m,elpatch(j,k))
            ,vmxy(m,elpatch(j,k)),Txz(m,elpatch(j,k))
            ,Tyz(m,elpatch(j,k)),i,Mih)
          Fe=Fe+B1i*Mih ! Fe=sum(B 1i Mih detj)
        end do
        Hi=Hi+He   ! Hi=sum(He)
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```fortran
subroutine getB(qsi,eta,bb,bs,B)
  integer i,j
  real*8 qsi,eta,bb(3,12),bs(2,12),B(5,12)
  call NIQUAD(qsi,eta)
  call PIQUAD(qsi,eta)
  call JACOBQ2(qsi,eta)
  call BBDKMQ(bb)
  call BSDKMQ(bs)
  do j=1,12
    do i=1,3
       B(i,j)=bb(i,j)
      end do
    do i=1,2
       B(i+3,j)=bs(i,j)
      end do
  end do
  return
end

subroutine getMih(vmx,vmy,vmxy,Txz,Tyz,i,Mih)
  real*8 vmx,vmy,vmxy,Txz,Tyz,Mih
  select case (i)
      case (1)
        Mih=vmx
      case (2)
        Mih=vmy
      case (3)
        Mih=vmxy
      case (4)
        Mih=Txz
      case (5)
        Mih=Tyz
  end select
  return
end
```

start

qkj=0 ; Mm=0

Do

chknode=0
k=1

Do while

Node kj ada dalam patch

nonode(k,j)=kj → yes

no

Chknode=1

k=k+1

nonode(k,j)=0

chknode=1

yes

qkj=qkj+1

Menghitung koordinat natural dari node kj

Cor(x(1,kj),x(2,kj),xmax(j),xmin(j),ymax(j),ymin(j),xw,yw)
getP(P,xw,yw)

Menghitung P(ξi,ηi)
(dipakainya nanti belakangan)

Do

yes

A

i=1,5

j=1,nopatch

B

end