

BRODSKI STROJNI SUSTAVI



SUSTAVI OPĆE SLUŽBE

Hidraulika i pneumatika



Primjena

- Hidraulički sustavi
 - daljinsko upravljanje
 - pogon hidrauličkih strojeva
- Pneumatski sustavi
 - daljinsko upravljanje

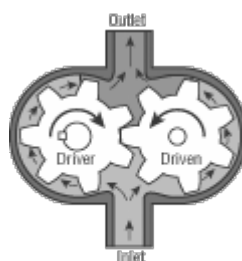
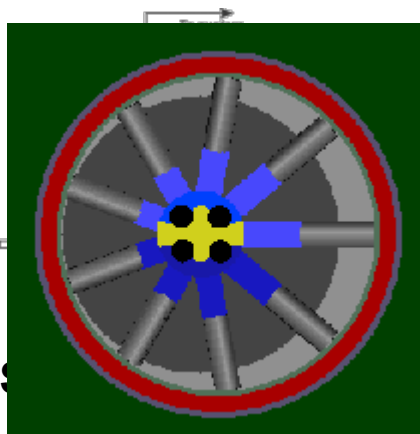


Radni fluidi

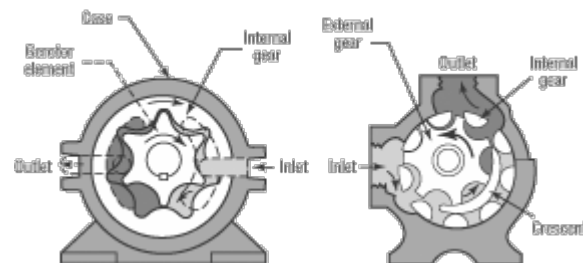
- svojstva: stabilnost kod povišenih temperatura, kemijska stabilnost, nekorozivnost, konstantan viskozitet, niska cijena, ekološki prihvatljivi, otporni na zapaljenje...
- osnove: biljna ulja, umjetni esteri ili mješavina
- aditivi

Elementi hidrauličkih sustava

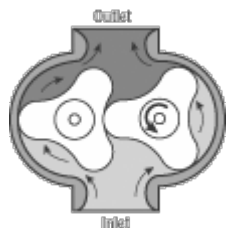
PUMPE: STAPNE – KLIPNE, ZUPČASTE, VIJČANE, LAMELASTE...



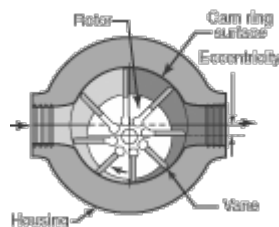
ZUPČASTA



**S UNUTARNJIM
OZUBLJENJEM**



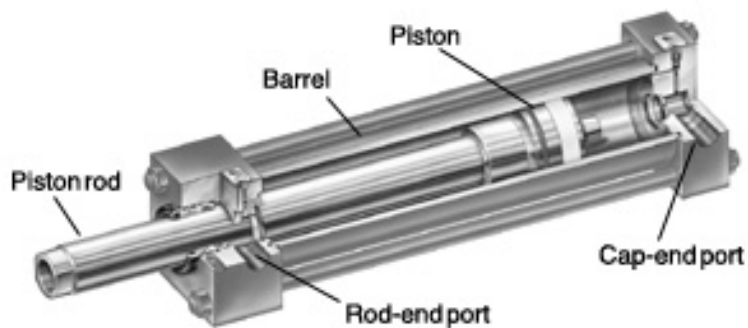
REŽNJASTA



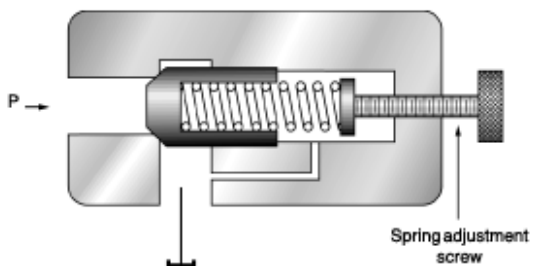
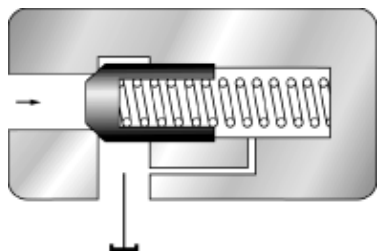
LAMELASTA

MOTORI

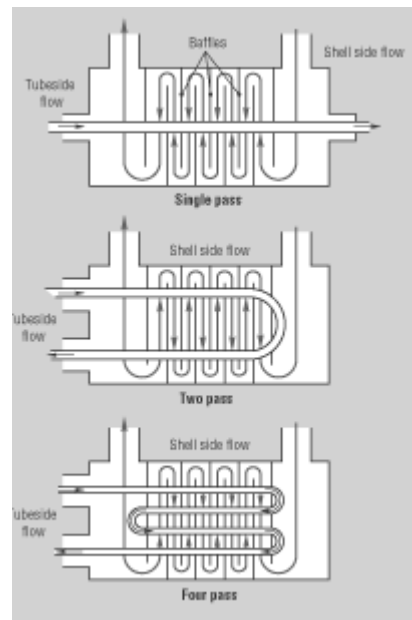
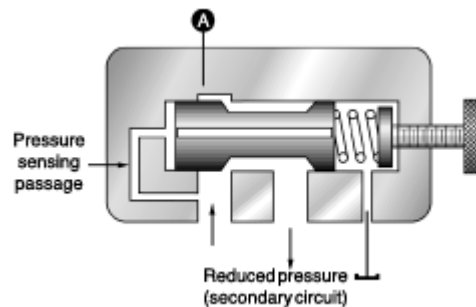
Elementi hidrauličkih sustava



CILINDAR - AKTUATOR

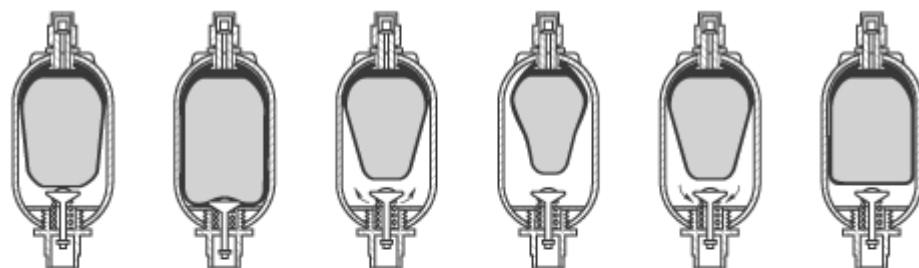


VENTILI KONSTANTNOG TLAKA



RASHLADNICI

Elementi hidrauličkih sustava



(a)

(b)

(c)

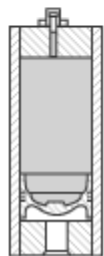
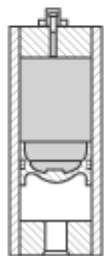
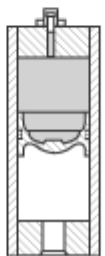
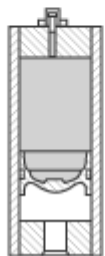
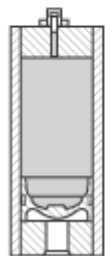
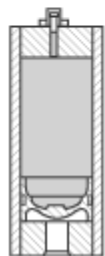
(d)

(e)

(f)



gas

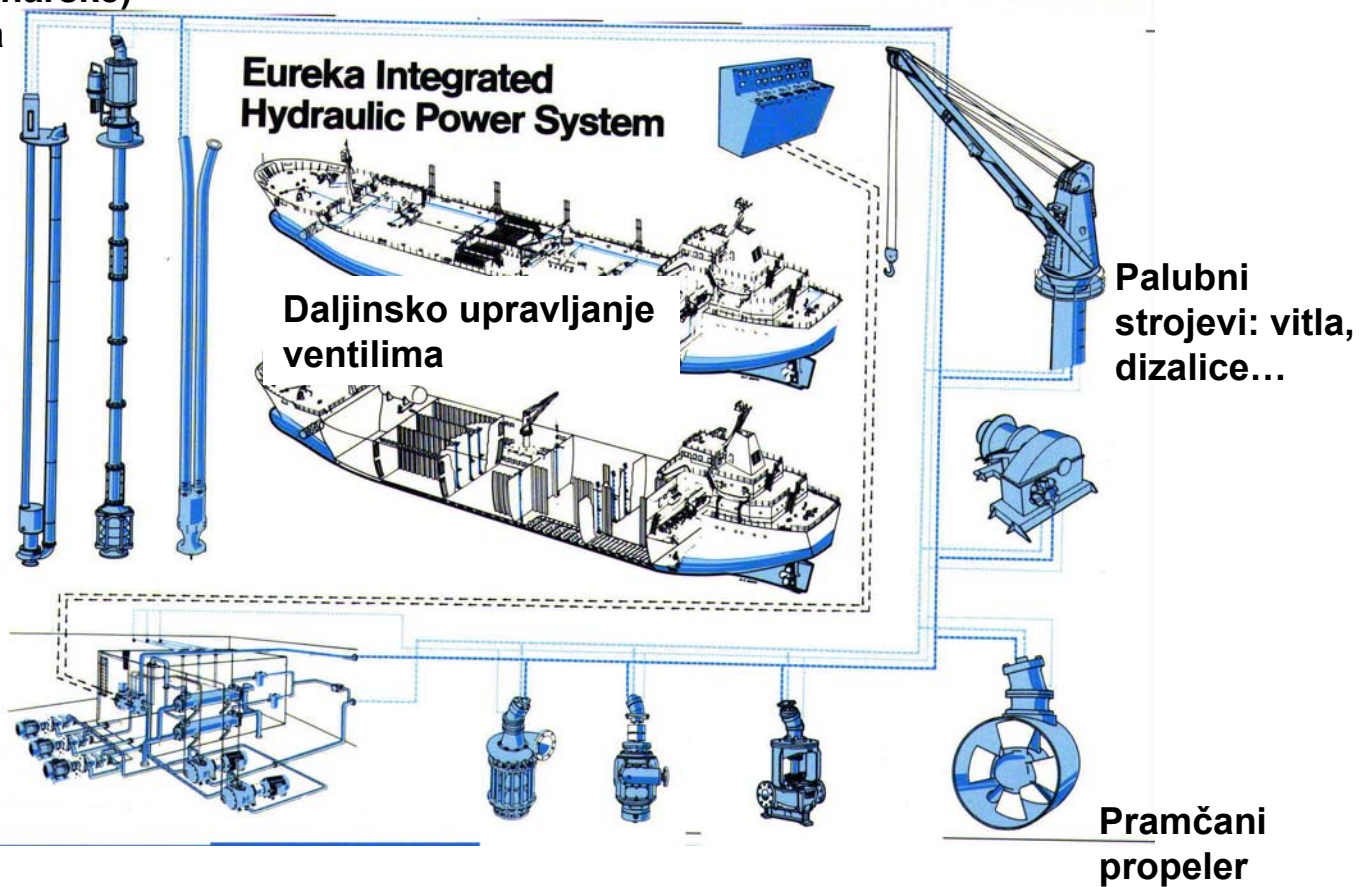


AKUMULATOR S MIJEHOM

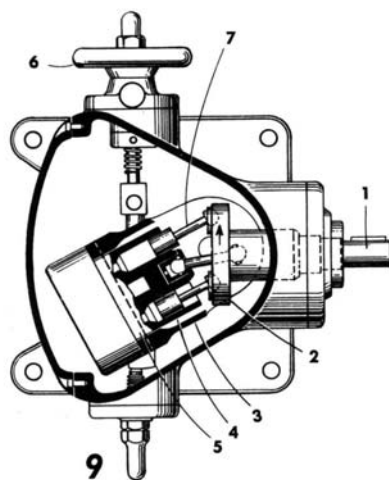
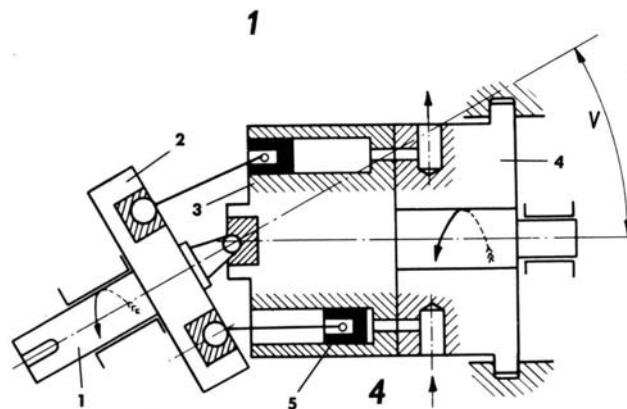
AKUMULATOR S KLIPOM

Hidraulički sustav

Uronjene (bunarske)
pumpe tereta



Pumpa – aksijalna klipna s promjenjivim hodom

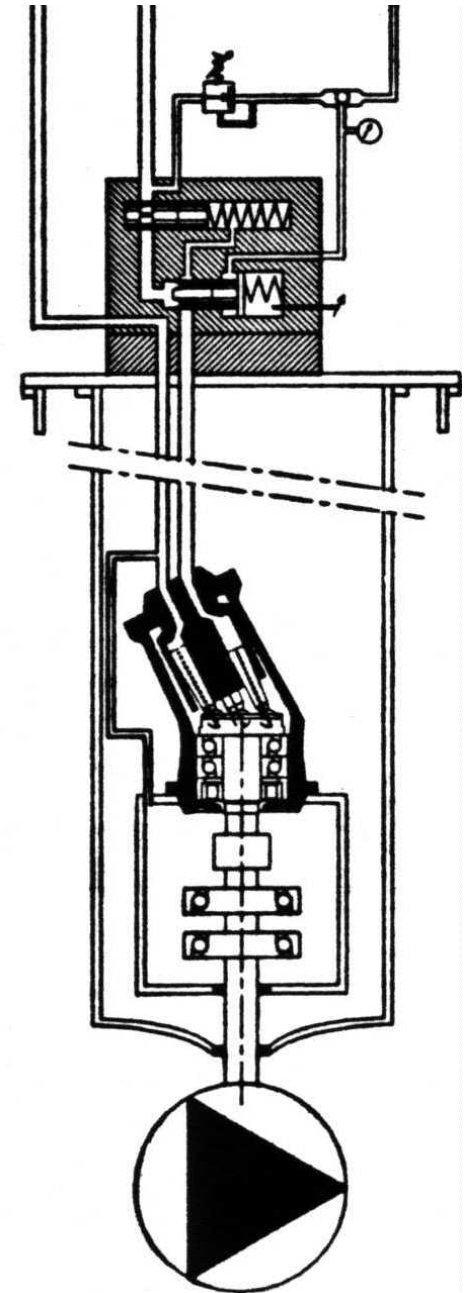


Uronjena pumpa

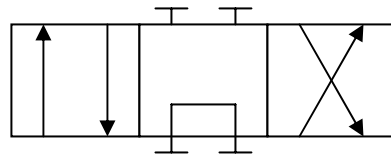
Regulacijski ventil

Hidromotor

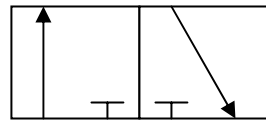
Dvostruka stjenka



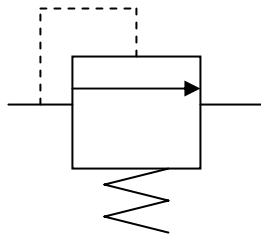
Simboli - ventili



4/3



3/2

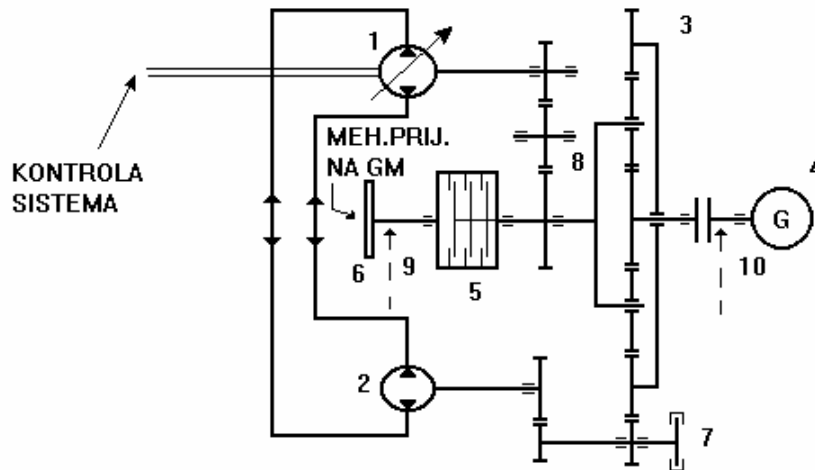




Neke primjene

- hidrauličko-mehanički regulator konstantnog broja okretaja osovinskog generatora (“RENK”)
- hidrauličko upravljanje ventilima
- sustav manevarskog zraka

Izvedba – “RENK”



1-hidraulička pumpa s promjenjivom dobavom

2-hidromotor

3-planetarni prijenosnik

4-osovinski generator

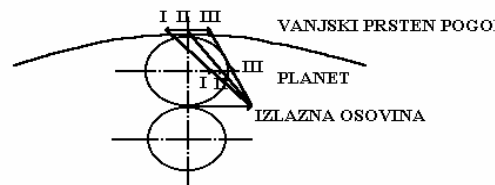
5-lamelasta spojka

6-elastična spojka

7-kočnica

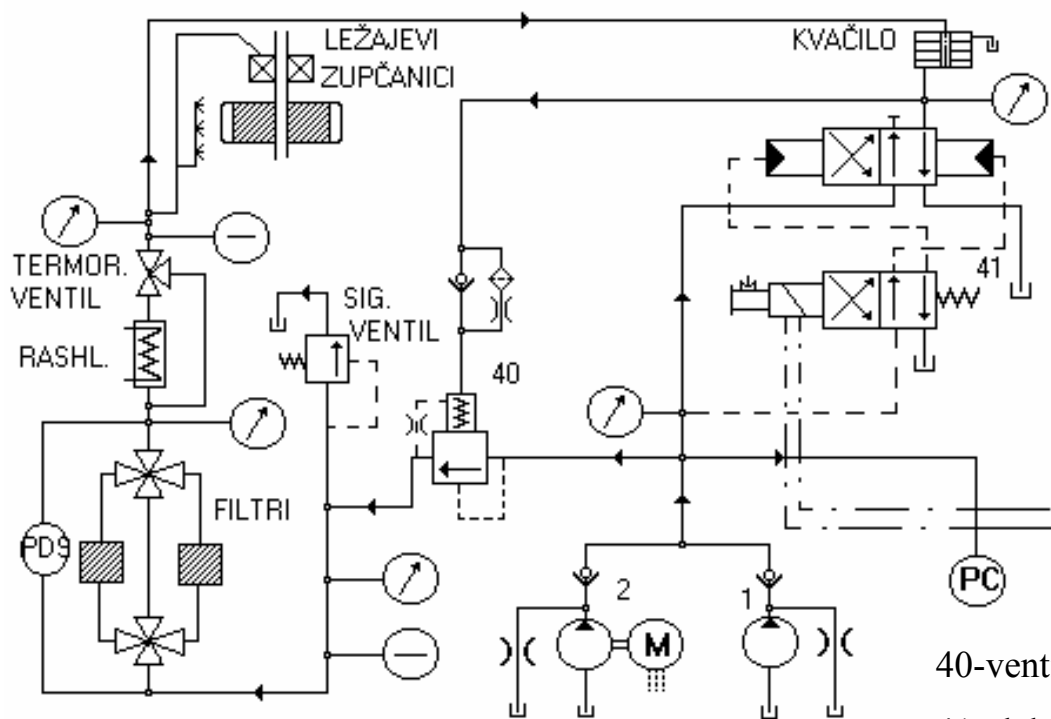
8-pogonski zupčanik pumpe

9,10-davači broja okretaja



PLAN BRZINA OKRETANJA
 ULAZNE OSOVINE, IZLAZNE
 OSOVINE I VANJSKOG PRSTENA
 PLANETARNOG ZUPČANIKA

Podmazivanje i upravljanje

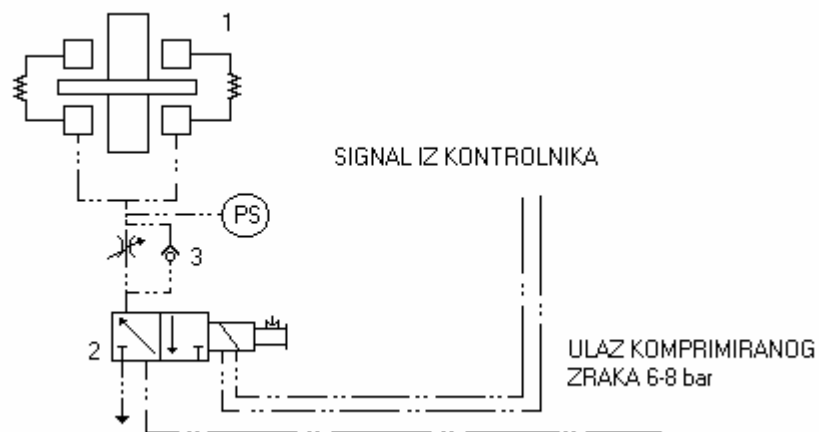


40-ventil konstantnog tlaka

41-elektromagnetski pilot ventil

SISTEM ULJA ZA PODMAZIVANJE LEŽAJEVA I UPRAVLJANJE
TARNOM SPOJKOM "RENK-a"

Upravljanje kočnicom

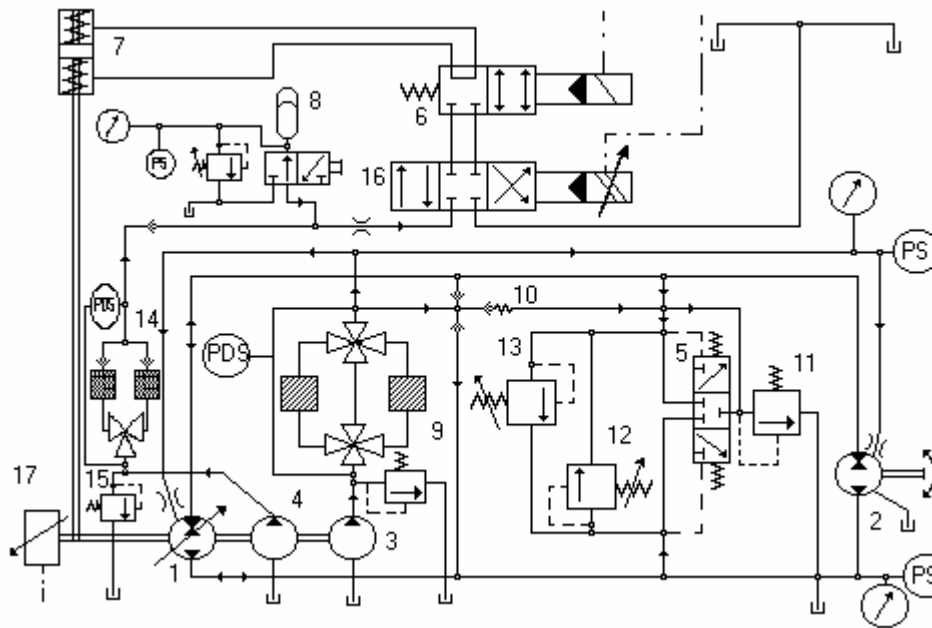


1-KOČNICA

2-RAZVODNIK

3-PRIGUŠNI VENTIL

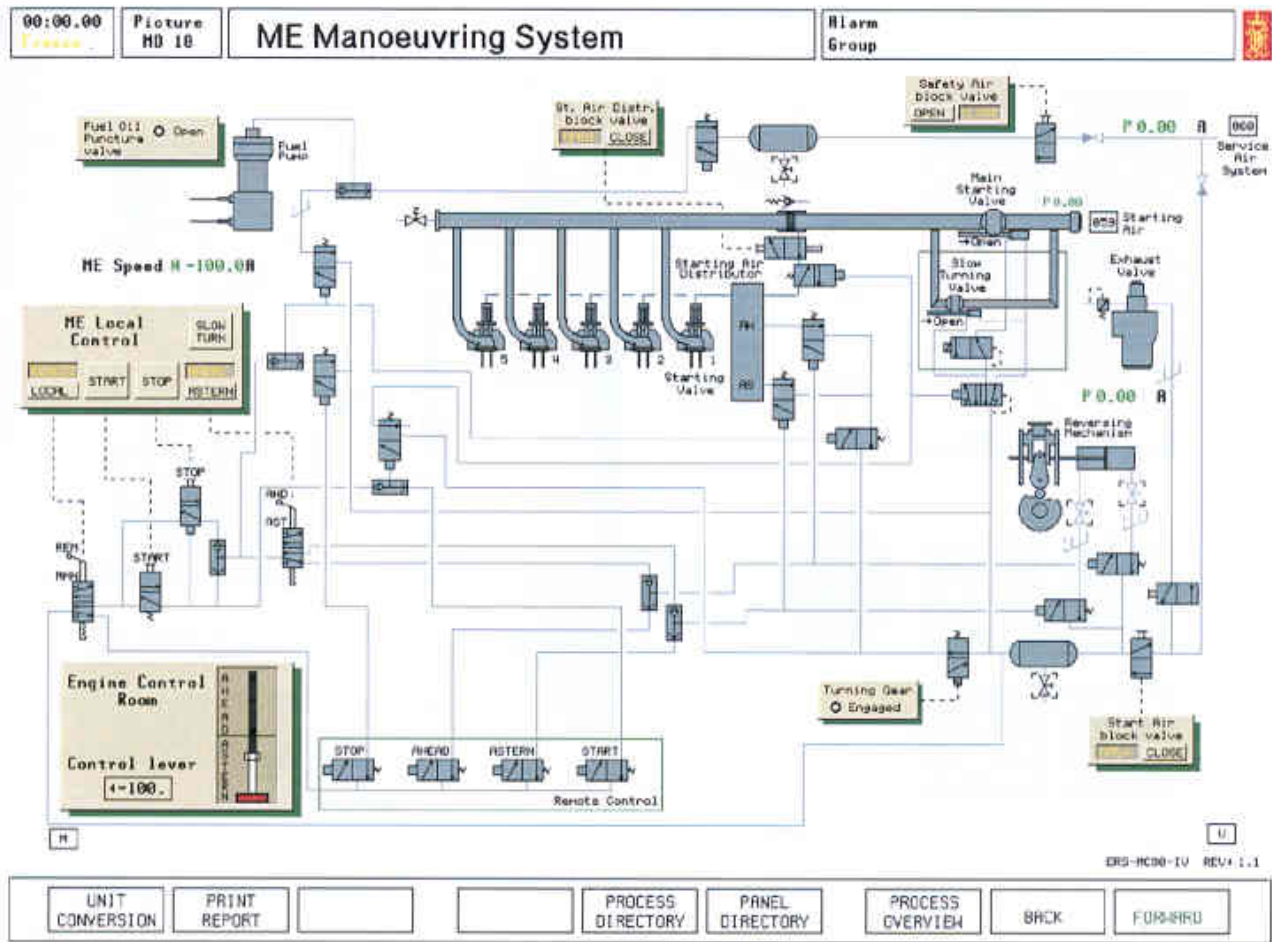
Regulacija



- 1-hidropumpa
- 2-hidromotor
- 3-napojna pumpa
- 4-servo pumpa
- 5-ventil za izmjenu ulja u radnom cjevovodu
- 6-ventil za blokiranje
- 7-kontrolni klip
- 8-ekspanziona posuda
- 9-filter
- 10-nepovratni ventil
- 11-ventil konstantnog tlaka
- 12-ventil održavanja konstantnog tlaka u radnom cjevovodu
- 13-ventil održavanja konstantnog tlaka u radnom cjevovodu
- 14-filter
- 15-sigurnosni ventil
- 16-servoventil
- 17-potenciometar(signal položaja kontrolnog klipa)

SUSTAV REGULACIJE KONSTANTNOG BROJA OKRETAJA

Manevarski zrak



Neke sheme

