

# STEERING ENGINE

## OPERATING INSTRUCTIONS

### TO START PORT OR STARBOARD POWER UNIT

1. Turn motor by hand to insure free rotation.
2. Close circuits to rudder angle indicators and steering alarm.
3. See that cable selector switch is on the desired cable. Open synchronous control circuit by push button.
4. With trickwheel engaged, turn until helm pointer corresponds with rudder pointer.
5. Close circuits to both motors, I.C. Transformer bank, and steering gear control on steering power transfer panel.
6. See that pump transfer cock lever is in Port position, (Port Unit), Starboard position, (Starboard Unit).
7. Start port main motor by push button, or starboard main motor by push button.
8. When bridge is ready to take control of steering, disengage trickwheel.
9. Close synchronous control circuit by push button. Insure trickwheel disengages.

### TO SHIFT FROM PORT POWER UNIT TO STARBOARD POWER UNIT

1. Place starboard motor in standby position by pushing button.
2. Notify steering station of intentions, requesting wheel be kept motionless during change.
3. When rudder pointer corresponds with helm pointer move pump transfer cock lever to Starboard position.
4. Notify steering station that change has been completed.
5. Stop Port motor—leave in standby position.

### EMERGENCY SHIFT

With idle motor in standby position, move pump transfer cock lever to other unit.

### TO SECURE

1. Request steering station to put rudder on zero angle or use trickwheel for this purpose.
2. Open synchronous control circuit by push button.
3. Stop main motor.
4. Open circuits on steering power transfer panel.
5. Open circuits on rudder angle indicators and steering alarm.

### SAFETY PRECAUTIONS

1. Before starting see that the hydraulic system is completely filled with clean oil of proper viscosity and all air removed.
2. Inspect system for oil leaks and tighten all unions and fittings showing seepage.
3. Keep oil at proper level in expansion tank.
4. Keep clutch lever disengaged and locking pin in place when not using hand power.
5. Inspect ram packing frequently to see that packing is not too tight.
6. Do not stow articles in steering engine room which may obstruct and fall on the steering engine ram.
7. Use posted lubrication chart in oiling and greasing steering gear.

READ MANUFACTURER'S PAMPHLET FOR  
"DETAILED INSTRUCTIONS"