

## GENERAL GUIDELINES FOR INSTALLATION OF REVERSE REDUCTION AND CLUTCH REDUCTION GEARBOXES

The reduction gearbox has been assembled in conformity with the order we received, and has been tested before delivery. Before installation, a check must be carried out to verify that the scope of supply and execution of the delivery are in accordance with the customer order, e.g.:

- input and output sense of rotation
- connection dimensions of SAE housing and flexible coupling
- reduction ratio
- type and accessories.

### COOLING

#### Oil cooler with 1.5 - 2" bore

Applicable in box-cooling systems for a cooling-water temperature of about 30 to 45 °C, depending on the type of gearbox and the engine power. Place cooler in bypass with control valve and air bleeder valve.

Connect the pipelines to the cooler with the rubber hoses.

Required amount of cooling water approx 20 m<sup>3</sup>/hr.

#### Oil cooler with 4" bore

Applicable in cooling-water line from bin to engine with a cooling-water temperature of about 30 to 45 °C. Cooler to be provided with air bleeder valve in cooling-water circuit, and to be connected via steel hydraulic lines to the flexible hoses about 75 cm long on the gearbox in the hydraulic system. The bore of the steel hydraulic lines must be sufficient to avoid excessive flow resistance, a minimum internal diameter of 30 mm is recommended. The lines must be connected in accordance with the counterflow principle. For flow directions, see installation diagram.

### OIL DRAINAGE LINE

It is advisable to make a pipe connection between the drainage hole at the bottom of the gearbox (preferably with shut-off valve) and the carter drainage pump of the engine, via a three-way valve.

### SETTING UP

#### General remarks:

- hoist facilities should be provided above the gearbox.
- floor plates, supports, pipes etc. round the gearbox should preferably be made or kept dismountable, to facilitate work on the gearbox.

In the case of gearboxes with loose supports (series N), these supports could be aligned flush against the supporting edge of the gearbox before the bolts are tightened.

The gearbox should be placed on steel or cast-iron shims or Vibracon SM foundation elements, and one fitted bolt should be used both port and starboard at the propeller end. The other bolts should be in conformity with the usual standards. When resin shims are used, the manufacturer's instructions should be followed as regards the dimensions of the shims and the tightening torques of the bolts. If installations are built in conformity with the standards of a classification society, the instructions of the relevant society should be followed. Both with loose and with integrated gearbox supports, care should be taken to clean all assembly and fitting surfaces thoroughly. Foundation bolts and jack screws are not included in the standard delivery package. Connecting bolts are not included in the standard delivery package, unless a counter flange is delivered.

### PROPELLER SHAFT / INTERMEDIATE SHAFT BEARINGS

At least 2 fitted bolts should be used in the output flange. If one or more journal bearings are included in the shaft line, the first bearing should be situated at least 10xD and at most 15xD (where D is the shaft diameter) from the flange of the output shaft. A sleeve stuffing box is not generally regarded as a journal bearing, unless it has been dimensioned and made as such in conformity with the standards of the classification society.

### ALIGNMENT OF REVERSE REDUCTION GEARBOX / PROPELLER SHAFT

#### With rigid set-up

In conformity with the usual standards with a maximum deviation of 0.05 mm, measured at the flange of the output shaft.

#### With flexible set-up

After consultation with the manufacturer of the flexible propeller-shaft coupling and ADSvanSTIGT.

### ALIGNMENT OF ENGINE / REVERSE REDUCTION GEARBOX

#### With rigid set-up

In accordance with the instructions of the manufacturer of the flexible coupling. When a bell housing is used for assembly against the flywheel housing, the engine should be independently supported.

#### With flexible set-up

In accordance with the instructions of the manufacturers of the flexible coupling and the flexible engine mountings.

In general, the alignment should be completely central in the operating situation.

NB: Bolts for the connection of the SAE bellhousing and flexible coupling to flywheel and housing, are not included in the gearbox delivery package.

## ALARM AND OTHER SIGNALS

Mandatory:

- 1 pressure gauge (operating pressure) on or near the gearbox.
- 1 pressure alarm relay (responding to operating pressure). Adjustment depends on gearbox type.  
An acoustic circuit should include an adjustable delay (1 - 10 sec.).

Advised:

- 1 thermometer (oil temperature cooler input)
- 1 temperature alarm relay (responding to oil temperature). Adjustment depends on operating situation.
- 1 level alarm relay.

If a classification society is responsible for acceptance of the installation, the requirements of that society apply.

## OPERATION

The torque required to operate the control lever is about 0.5 kgm.

**Mechanical:** The length of and the number of bends in the operating cable influence the required control force and cable play. If a long cable is required it must be low-friction, or an electrical or pneumatic system must be chosen.

**Electrical:** 24 V DC

**Pneumatic:** Installation in accordance with the manufacturer's instructions.

### Important!

In all cases, a check must be carried out to verify that the three control positions on the bridge correspond accurately with those of the control lever on the gearbox. This point requires special attention when the height of the wheelhouse is adjustable.

## OIL FILLING

Fill the gearbox with the prescribed oil to the maximum indication groove. One should preferably use engine oil - not multigrade - with a rating of SAE 30. Depending on the operating temperature the oil rating may change; for further details, consult the Operating Manual or the oil supplier.

## START-UP

When the person or company responsible for installation starts up the engine the requirements stated above - and below - must have been met beforehand:

- cooling-water circuit filled and de-aerated
- gearbox filled with right amount and type of oil
- gearbox set to neutral

### Immediately after engine has been started up:

- check oil pressure.  
The correct value is given on the identification plate mounted on the gearbox (pressure at full engine rpm).
- check leak-tightness of all connections to and from the gearbox; to this end, the gearbox should be briefly set to "ahead" and "reverse".

The oil level should then be checked, and if necessary more oil should be added. For this check, follow the instructions given under "OIL FILLING".

## WARRANTY CHECK CARD

To be completed in duplicate after the trial run, by the company who placed the order for the gearbox, and 1 copy sent to ADSvanSTIGT within 1 week.

The installation check, system start-up and trial run should be carried out in consultation with ADSvanSTIGT.

For detailed information, see technical specifications, accompanying documentation and Operating Manual. In cases of doubt, please contact ADSvanSTIGT.



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