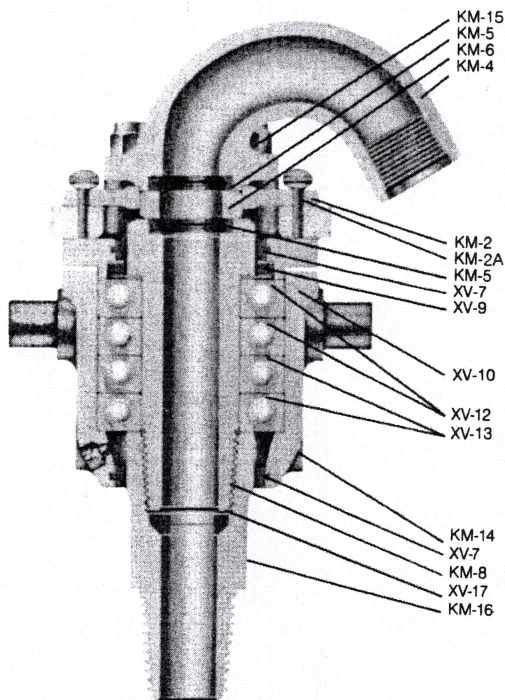


2-KM, 10-KM and 15-KM Swivels



For Drilling Rigs Equipped With Chain or Cable Pull Down Means

These swivels are intended primarily as replacements on popular makes of pull-down type rigs.

Bails and pull-down yokes are not normally furnished with these swivels. These parts can usually be removed from the old swivels and fitted to the KM type.

Bails will be furnished, when required, on receipt of adequate specifications.

The bearings are angular-contact ball bearings. They are mounted, in multiple units, so as to absorb thrust loads in either direction. They have ample radial capacity to stabilize the swivels properly.

The packing unit consists of two molded, composition rubber rings. An extremely hard wearing ring (wear bushing) is interposed between the packing rings. These packing elements can be renewed within a very few minutes.

The 2-KM Swivel is for small Geophysical and Water Well rigs.

The 10-KM is for medium size Geophysical, Water Well and Core Drilling rigs.

The 15-KM is ideally suited to fairly large Geophysical, Water Well and Core Drilling rigs.

King Swivels are light in weight in comparison to other make swivels and are made of alloy treated steel.

Parts List for Type 10-KM Swivel

Part Number	Name of Part	No. Req'd	Net Weight Pounds	Spares for 1 Yr. Service
10KM-1	Bail (Furnished to Order Only)	—	—	—
10KM-2	Wear Bushing Retainer	1	3	1
10KM-2A	Wear Bushing Retainer Screw	4	1/16 (2)	—
10KM-4	Gooseneck	1	30	—
10KM-5	Packing	2	1/4 (2)	8
10KM-6	Wear Bushing	1	1	2
15XV-7	Housing Seal	2	3/8 (2)	2
10KM-8	Bearing Spindle	1	10	—
15XV-9	Shield Seal	1	1/8	1
15XV-10	Bearing Shield	1	1/4	—
15XV-12	Bearings*	4	10	4
10KM-14	Bearing Housing	1	24	—
10KM-15	Bonnet Studs and Nuts	4 ea.	3 (4)	—
10KM-16	Lower Connection	1	11	—
15XV-17	Spindle Thread Seal	1	—	1

Weights and Dimensional Data

Type Swivel	Weight, Pounds	Length Overall*	Lower (Kelly) Connection L.H. Tool Pin or Drill Pipe Thread	Hose Connection	Diam. Water Course
2-KM	40	15"	N-Rod; Mayhew 200 or 2 3/8" O.D., 8-V	1 1/2" NPT	1 1/2"
10-KM	70	18"	2 3/8" API Reg.; Mayhew 1,000 or 2 7/8" D., 8-V	1 1/2" NPT	1 1/2"
15-KM	80	19 1/2"	2 7/8" O.D., 8-V, Drill Pipe	2" NPT	2"

*Length does not include Bail.

Capacities and Safety Data

Type Swivel	Capacity, Lbs. at 100 R.P.M.	Static Load Limit, Lbs.	Safe Depths (Feet) With Drill Pipe	
			2 3/8" 6.65 Lb.	2 7/8" 10.4 Lb.
2-KM	10,000	20,000	1,000	—
10-KM	18,000	30,000	1,800	1,200
15-KM	27,000	30,000	2,700	1,800

Parts List for Type 15-KM Swivel

Part Number	Name of Part	No. Req'd	Net Weight Pounds	Spares for 1 Yr. Service
15KM-1	Bail (Furnished to Order Only)	1	—	—
15KM-2	Wear Bushing Retainer	1	3	—
10KM-2A	Wear Bushing Retainer Screw	4	1/16 (2)	—
15KM-4	Gooseneck	1	24	—
15KM-5	Packing	2	1/8 (2)	8
15KM-6	Wear Bushing	1	1	2
15XV-7	Housing Seal	2	1/4 (2)	2
15KM-8	Bearing Spindle	1	10	—
15XV-9	Shield Seal	1	1/8	1
15XV-10	Bearing Shield	1	1/4	—
15XV-12	Bearings*	5	13	5
15KM-14	Bearing Housing	1 ea.	29	—
10KM-15	Bonnet Studs and Nuts	4 ea.	3 (4 ea.)	—
15KM-16	Lower Connection	1	11	—
15XV-17	Spindle Thread Seal	1	—	1

*When bearings are renewed, replace with a new matched set. Do not replace one bearing in an old set. Be sure that bearings have flush ground faces.

Parts List for Type 2-KM Swivel

Part Number	Name of Part	No. Req'd	Net Weight Pounds	Spares for 1 Yr. Service
2KM-1	Bail (Furnished to Order Only)	—	—	—
2KM-2	Wear Bushing Retainer	1	1 1/2	1
2KM-2A	Wear Bushing Retainer Screw w/Nut	2	1/16 (2)	—
2KM-4	Gooseneck	1	16	—
2KM-5	Packing	2	1/8 (2)	8
2KM-6	Wear Bushing	1	3/4	2
10XV-7	Housing Seal	2	1/4 (2)	2
2KM-8	Bearing Spindle	1	5	—
10XV-9	Shield Seal	1	1/8	1
10XV-10	Bearing Shield	1	1/4	—
10XV-12	Bearings*	4	6	4
2KM-14	Bearing Housing	1	10	—
2KM-15	Bonnet Studs and Nuts	4 ea.	2 (4)	—
2KM-16	Lower Connection	1	5	—
2KM-17	Spindle Thread Seal	1	—	1

15KM MAJOR REPAIRS

As with any piece of equipment, repair is inevitable. The following will describe the steps required to disassemble, check and repair a 15KM Swivel.

1. Remove swivel from rig (may not be necessary)
2. Unscrew the four (4) nuts located on the top of the gooseneck (15KM-04)
3. Lift gooseneck (15KM-04) off bearing housing (15KM-14)
4. From the gooseneck (15KM-04) remove the Upper Housing Seal (15XV-07), Shield Seal (15XV-09), Wearbushing Retainer [(15KM-02A) (held in place by four (4) Hex Head Cap Screws (10KM-02A))] and the packing (15KM-05).
5. Remove the four (4) Bonnet Studs (10KM-15) from the bearing housing (15KM-14).
6. Slide Bearing Housing (15KM-14) down about 3/8" to 3/4" (will vary with swivel).
7. Secure the Lower Connection (15KM-16) holding back up in the TONG AREA provided between the Lower Connection threads and the lower seal surface. With a pipe wrench, unscrew the Spindle (15KM-08) from the Lower Connection (15KM-16). THIS IS A LEFT HAND THREAD
NOTE: A raised area is provided on the Bearing Spindle (15KM-08) so the Upper Seal surface will not be marked with pipe wrench jaws.
8. Remove Bearing Spindle (15KM-08), Bearing Shield (15XV-10), Lower Connection (15KM-16), Spindle Thread Seal [(15XV-17) from box thread of Lower Connection (15KM-16)], and five (5) Bearings [(15XV-12) from Bearing Housing (15KM-14)]
9. The unit is now disassembled. Clean all parts, repair or replace parts showing damage or wear. A chart showing the dimensions of depth and OD of packing bores and seal surfaces is provided. If measure of these areas are off as little as 1/64th. (.0156) packing or seals life will be reduced. When measurement of these areas are off 3/64th to 1/16th the part must be repaired or replaced.

:IMPORTANT NOTE:

The Spindle (15KM-08) and the Lower Connection (15KM-16) may require fitting if either part is repaired or replaced. With both parts clean and lightly oiled, screw together hand tight. Measure the distance between the bearing seats of the bearing spindle and the lower connection. A distance of 4-29/32" +0/-1/64 must be achieved. If this measurement is greater of less than 4-29/32" +0/-1/64 it must be fitted.

Premature bearing failure and packing problems will result if this step is not followed.

±0. Reverse steps 1 thru 8 for reassembly.

11. When bearings are replaced, always replace with full sets of five (5) pieces. Pay special attention to the Bearing Stack, the pulldown (upthrust) are always closest to the lower connection and the pullback (downthrust) are closest to the Top of Spindle. The standard stack of a 15KM swivel is 2 upthrust and 3 down thrust, but may be modified for your operation.

A drawing is provided for your reference.

12. After completion lubricate Bearing Housing per procedure described in Daily Maintenance.

15KM GENERAL MAINTENANCE

As needed:

Replace packing when leaking occurs.

To Replace:

1. Unscrew the four (4) nuts located on the top of the gooseneck (15KM-04).
2. Lift gooseneck (15KM-04) to remove.
3. Remove the wearbushing (15KM-06).
4. Remove the packing (15KM-05). One piece in the bearing spindle and the other in the gooseneck.
5. Replace with new packings (15KM-05) and wearbushing (15KM-06). The wearbushing should be changed every other to every third packing change.

NOTE: When packing is replaced, it should receive some resistance when seating in the pack bore of Gooseneck (15KM-04) and/or Spindle (15KM-08). If the packing(s) fit loosely, the packing bores require repair. See Step 9 of Major Repair.

6. Reverse steps to re-assemble.

DAILY:

Lubricate bearings (15XV-12) with a high quality grease, while spindle is rotating. Kings recommendation for lubrication is on Page _____.

The zerk fitting located in the lower portion of the Bearing Housing (15KM-14) allows for complete filling of the Bearing Housing. Lubricate until grease by passes the Upper Housing Seal (15XV-07). This is normal and insures the Bearings are completely lubricated.

THREE MONTHS:

The upper and lower housing seals (15XV-07) should be replaced every three (3) months. Always replace these Housing seals as sets. The Housing seals are high wear items serving to retain lubrication in the Bearing Housing (Lower Housing Seal) and to retard leaking drilling fluids (should packing leak) from entering Bearing Housing (Upper Housing Seal).

NOTE The #1 cause of Bearing failure in a swivel is no or improper lubrication followed closely by drilling mud entering the Bearing Housing, contaminating the bearing lubrication.

TO REPLACE:

1. Follow step 1 thru 8 in Major Repairs.
2. Reverse to complete
3. Lubricate Bearing Housing as described in DAILY of General Maintenance.

10KM MAJOR REPAIRS

As with any piece of equipment, repair is inevitable. The following will describe the steps required to disassemble, check and repair a 10KM swivel.

1. Remove swivel from rig (may not be necessary)
2. Unscrew the four (4) nuts located on the top of the gooseneck.
3. Lift Gooseneck (10KM-04) off bearing housing
4. From the gooseneck remove the Upper Housing Seal (15XV-07) Shield Seal (15XV-09), Wearbushing Retainer (10KM-02) (held in place by four (4) Hex Head Cap Screws (10KM-02A) and the packing (10KM-05).
5. Remove the four (4) Bonnet Studs (10KM-15) from the bearing Housing.
6. Slide Bearing Housing down about 3/8" to 3/4" (will vary with swivel)
7. Secure the Lower connection (15KM-16) holding back up in the TONG AREA provided between the Lower Connection threads and the lower seal surface. With a pipe wrench, unscrew the Spindle ((10KM-08) from the lower connection. THIS IS A LEFT HAND THREAD NOTE: A raised area is provided on the Bearing Spindle so the Upper Seal surface will not be marked with pipe wrench jaws.
8. Remove Bearing Spindle, Bearing Shield, Lower Connection, Spindle Thread Seal from box thread of Lower Connection and four (4) bearings (15XV-12) from Bearing Housing.
9. The unit is now disassembled. Clean all parts, repair or replace parts showing damage or wear.
10. Reverse 1 thru 8 for reassembly.

2 KM SWIVEL

TO CHANGE BEARING STACK

The swivel must be completely disassembled.

FOLLOWING THESE STEPS:

1. Remove the gooseneck (2KM-04) by unscrewing the four nuts located on top of gooseneck.
2. Remove the four bonnet studs (2KM-15)
3. Slide the bearing housing (2KM-14) down about 3/4"
4. Secure the lower connection (2KM-16) and unscrew the spindle (2KM-08). Use the raised boss on the spindle head for pipe wrench, this is a left hand thread -- break to the right.
5. Remove spindle bearings and bearing housing assembly from lower connection.
6. Remove bearing housing from bearings/spindle assembly
7. Remove bearings from spindle.

TO RESTACK BEARINGS - 2 PULL BACK 2-PULL DOWN

1. Place spindle (2KM-08) on a flat surface with threads up.
2. Clean and replace bearing shield (10XV-09) on spindle.
3. Place (2) ~~TWO~~ bearings on spindle with the Wide Outer Race Up toward the threads. (Hoisting bearings)
4. Place (2) two bearings on spindle with Wide Outer Race Down. (Pull down bearings)
5. Reverse steps 5 thru 1 to complete assembly.

Parts and Bearing Stack shown on Drawing A.

Note: For preloading bearings (shimming) for air hammer drilling. A .005 to .007 thick piece of shim stock is to be installed between hoisting and pulldown bearings. Shim stock is to be same O.D. as bearing with I.D. being 3/4" smaller. Shim on outer races only.

See drawing B for shim installation.

2KM MAJOR REPAIRS

As with any piece of equipment, repair is inevitable. The following will describe the steps required to disassemble, check and repair a 2KM swivel.

1. Remove swivel from rig (may not be necessary)
2. Unscrew the four (4) nuts located on the top of the gooseneck.
3. Lift Gooseneck (2KM-04) off bearing housing
4. From the gooseneck remove the Upper Housing Seal (10XV-07) Shield Seal (10XV-09), Wearbushing Retainer (2KM-02) (held in place by four (4) Hex Head Cap Screws (2KM-02A) and the packing (2KM-05).
5. Remove the four (4) Bonnet Studs (2KM-15) from the bearing Housing.
6. Slide Bearing Housing down about 3/8" to 3/4" (will vary with swivel)
7. Secure the Lower connection (2KM-16) holding back up in the TONG AREA provided between the Lower Connection threads and the lower seal surface. With a pipe wrench, unscrew the Spindle ((2KM-08) from the lower connection. THIS IS A LEFT HAND THREAD NOTE: A raised area is provided on the Bearing Spindle so the Upper Seal surface will not be marked with pipe wrench jaws.
8. Remove Bearing Spindle, Bearing Shield, Lower Connection, Spindle Thread Seal from box thread of Lower Connection and four (4) bearings (10XV-12) from Bearing Housing.
9. The unit is now disassembled. Clean all parts, repair or replace parts showing damage or wear.
10. Reverse 1 thru 8 for reassembly.