



**FERRANTI TAPCHANGERS LIMITED**

**ES3**

# MAINTENANCE PARTS MANUAL

ON LOAD TAPCHANGING EQUIPMENT



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ITEM 7  
AIR RELEASE VALVE  
TC-202050

ITEM 9  
OIL LEVEL  
SIGHT GASKET  
TC-224068003

ITEM 8  
OIL LEVEL SIGHT  
WINDOW  
TC-224068002

ITEM 10  
OIL SURGE GASKET  
TC-209053

ITEM 1  
GEARBOX OIL LEVEL  
SIGHT WINDOW  
TC-202643

ITEM 2  
GEARBOX OIL LEVEL  
SIGHT GASKET  
TC-202645

ITEM 6  
GEARBOX COVER GASKET  
TC-228742002

DRIVING MOTOR AND TIMING  
GEAR COMPARTMENT

ITEM 5  
MAIN FRONT COVER  
GASKET  
TC-228742001

HAND OPERATION  
SCREWED CAP

DRAIN AND FILTER  
VALVE FOR GEAR BOX

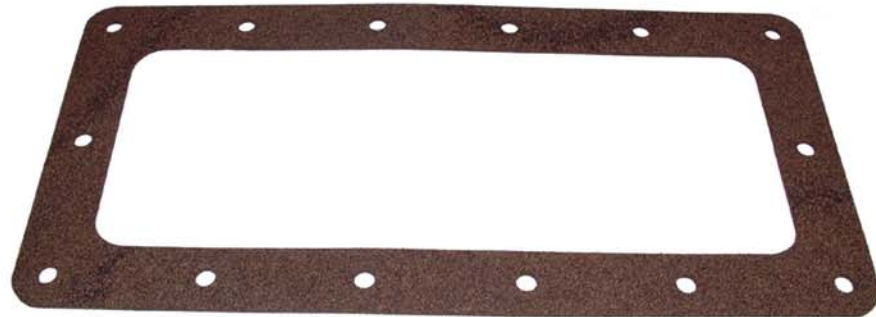




**ITEM 1**  
**GEARBOX OIL LEVEL**  
**SIGHT WINDOW**  
**TC-202643**



**ITEM 2**  
**GEARBOX OIL LEVEL**  
**SIGHT GASKET**  
**TC-202645**



**ITEM 4**  
**TOP OIL LEVEL SIGHT GASKET**  
**TC-202630001**



**ITEM 3**  
**TOP OIL LEVEL SIGHT WINDOW**  
**TC-202628**

**ITEM 11**  
**ES3 GASKET KIT**

**ITEM 2 TC-202645**  
**GEARBOX OIL LEVEL SIGHT GASKET**

**ITEM 4 TC-202630001**  
**TOP OIL LEVEL SIGHT GASKET**

**ITEM 5 TC-229860002**  
**MAIN FRONT COVER GASKET**

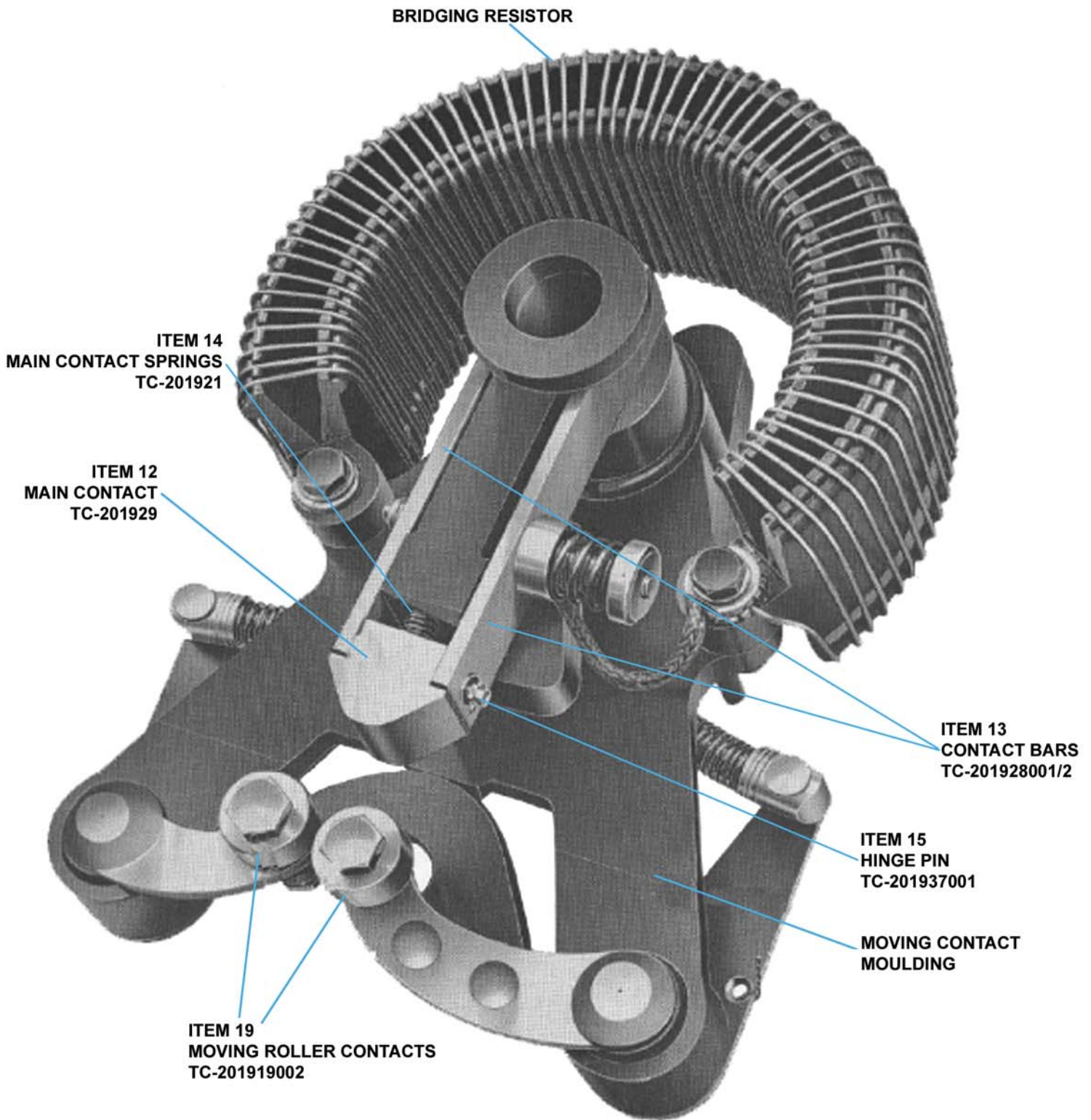
**ITEM 6 TC-228742002**  
**GEARBOX COVER GASKET**

**ITEM 9 TC-224068003**  
**OIL LEVEL SIGHT GASKET**

**ITEM 10 TC-209053**  
**OIL SURGE GASKET**



**ITEM 7**  
**AIR RELEASE VALVE**  
**TC-202050**





**ITEM 12  
MAIN CONTACT  
TC-201929**



**ITEM 13  
CONTACT BARS  
TC-201928001&2**



**ITEM 14  
MAIN CONTACT SPRINGS  
TC-201921**



**ITEM 15  
HINGE PIN  
TC-201937001**



**ITEM 16  
MAIN CONTACT WASHER  
TC-2131000712**



**ITEM 17  
SPLIT PIN  
TC-2115000200**

**ITEM 18  
MAIN CONTACT KIT  
TC-294007**

ITEM 12 TC-201929  
MAIN CONTACT

ITEM 13 TC-201928001&2  
CONTACT BARS

ITEM 14 TC-201921  
MAIN CONTACT SPRINGS

ITEM 15 TC-201937001  
HINGE PIN

ITEM 16 TC-2131000712  
MAIN CONTACT WASHER

ITEM 17 TC-2115000200  
SPLIT PIN



ITEM 20  
TC-201930002  
MOVING CONTACT BEARING PIN



ITEM 19  
TC-201919002  
MOVING ROLLER CONTACT

ITEM 28  
PLAIN WASHER  
TC-214341



ITEM 29  
COMPRESSION SPRING  
TC-213232



ITEM 22  
DISC WASHER  
TC-2136366255



ITEM 23  
SHORT CASTLE NUT  
TC-210314



ITEM 21  
SPLIT PIN  
TC-2115001500

**ITEM 25  
ROLLER CONTACT  
KIT SHORT  
TC-294002**

ITEM 19 TC-201919002  
MOVING ROLLER CONTACT

ITEM 20 TC-201930002  
MOVING ROLLER CONTACT  
BEARING PIN

ITEM 21 TC-2115001500  
SPLIT PIN

ITEM 22 TC-2136366255  
DISC WASHER

ITEM 23 TC-210314  
SHORT CASTLE NUT

ITEM 28 TC-214341  
PLAIN WASHER

ITEM 29 TC-213232  
COMPRESSION SPRING

**ITEM 26  
ROLLER CONTACT  
KIT SHORT NUT  
TC-294003**

ITEM 19 TC-201919002  
MOVING ROLLER CONTACT

ITEM 20 TC-201930002  
MOVING CONTACT  
BEARING PIN

ITEM 21 TC-2115001500  
SPLIT PIN

ITEM 22 TC-2136366255  
DISC WASHER

ITEM 24 TC-210315  
LONG CASTLE NUT

ITEM 28 TC-214341  
PLAIN WASHER

ITEM 29 TC-213232  
COMPRESSION SPRING



ITEM 20  
TC-201930002  
MOVING CONTACT BEARING PIN



ITEM 19  
TC-201919002  
MOVING ROLLER CONTACT



ITEM 28  
PLAIN WASHER  
TC-214341



ITEM 29  
COMPRESSION SPRING  
TC-213232



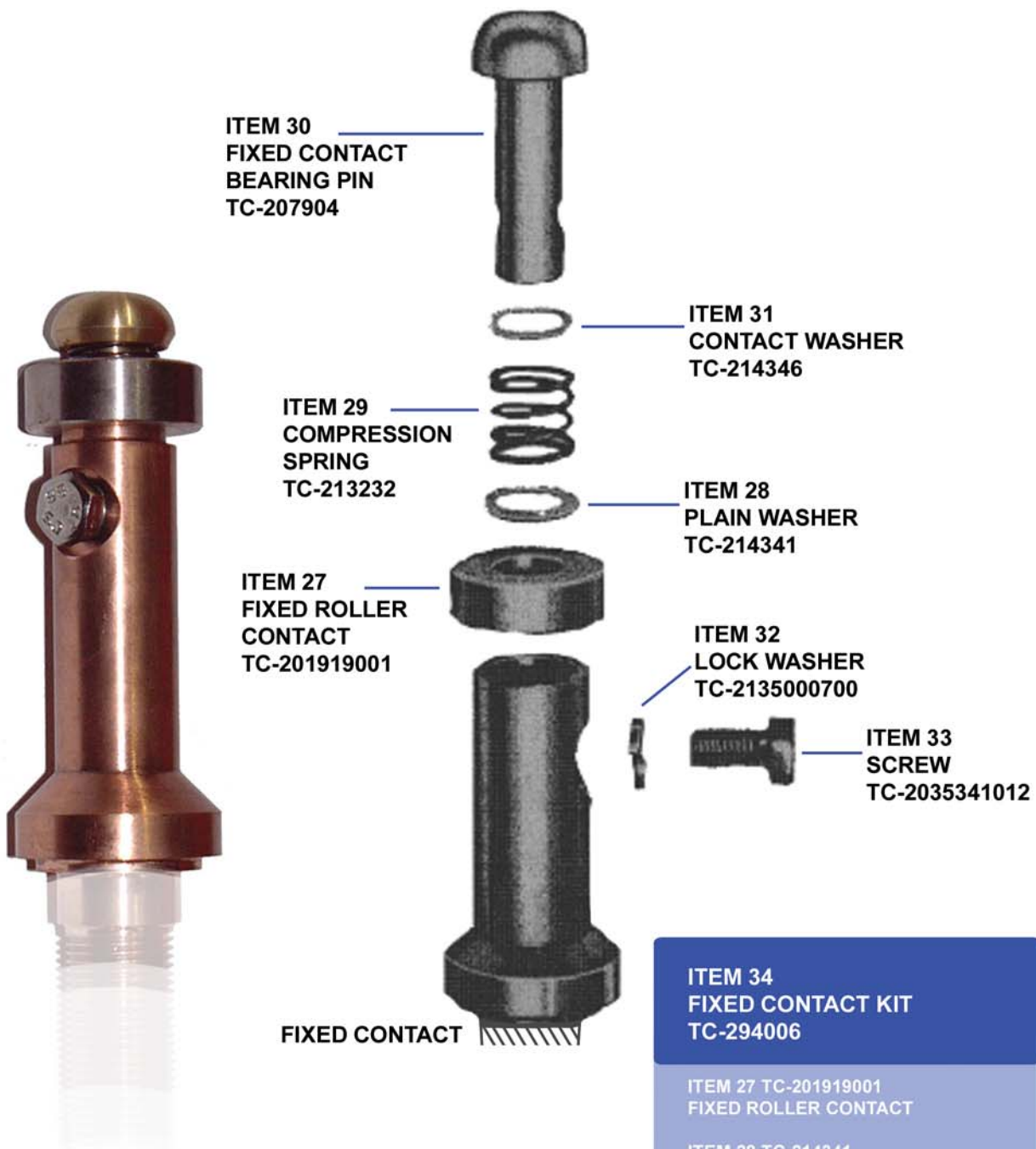
ITEM 24  
LONG CASTLE NUT  
TC-210315



ITEM 22  
DISC WASHER  
TC-2136366255



ITEM 21  
SPLIT PIN  
TC-2115001500



ITEM 30  
FIXED CONTACT  
BEARING PIN  
TC-207904

ITEM 31  
CONTACT WASHER  
TC-214346

ITEM 29  
COMPRESSION  
SPRING  
TC-213232

ITEM 28  
PLAIN WASHER  
TC-214341

ITEM 27  
FIXED ROLLER  
CONTACT  
TC-201919001

ITEM 32  
LOCK WASHER  
TC-2135000700

ITEM 33  
SCREW  
TC-2035341012

FIXED CONTACT

ITEM 34  
FIXED CONTACT KIT  
TC-294006

ITEM 27 TC-201919001  
FIXED ROLLER CONTACT

ITEM 28 TC-214341  
PLAIN WASHER

ITEM 29 TC-213232  
COMPRESSION SPRING

ITEM 30 TC-207904  
FIXED CONTACT BEARING  
PIN

ITEM 31 TC-214346  
CONTACT WASHER

ITEM 32 TC-2135000700  
LOCK WASHER

ITEM 33 TC-2035341012  
SCREW



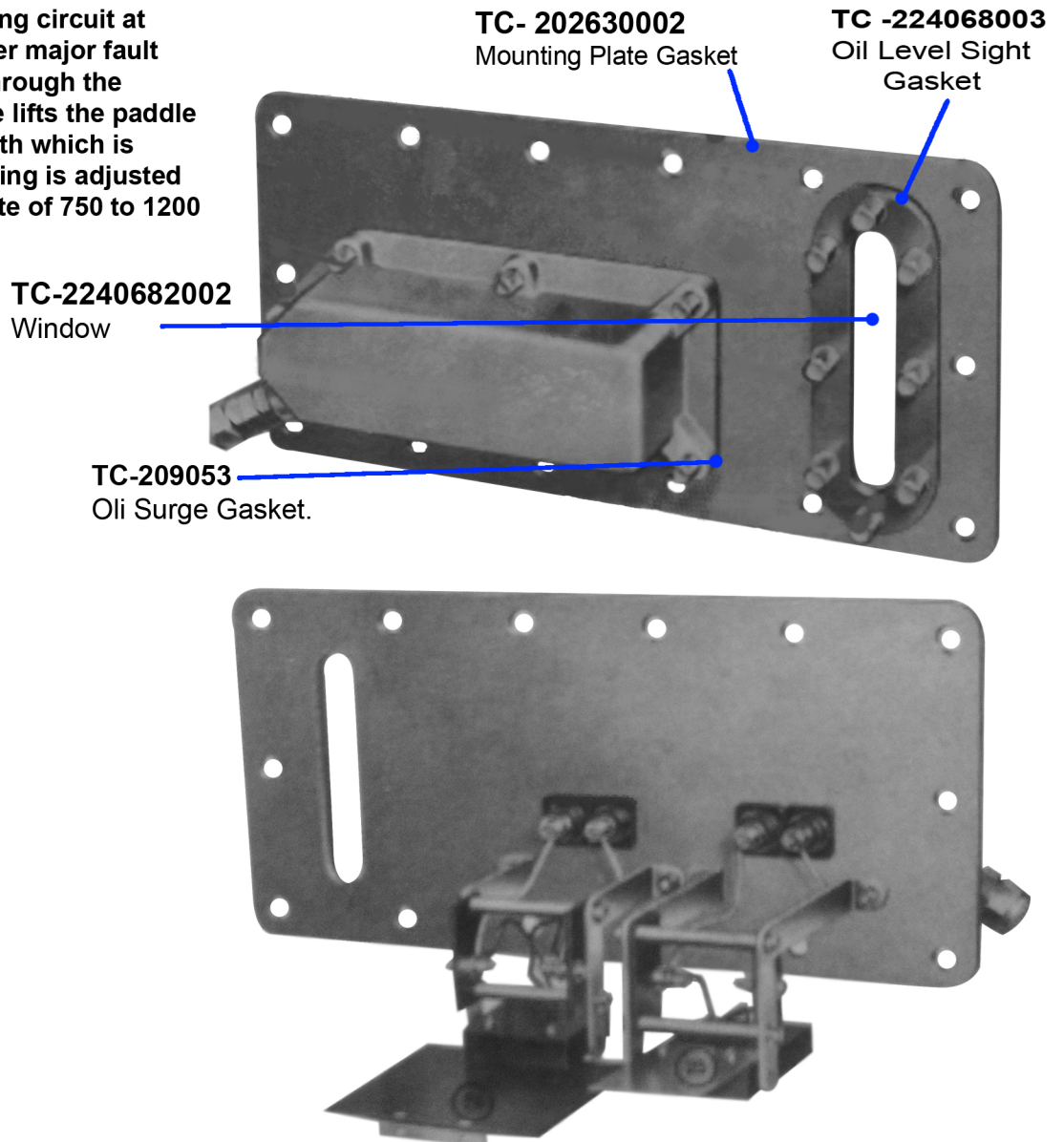
# OIL SURGE RELAY AND LOW LEVEL ALARM GASKET AND WINDOW KIT.

## TC 291554 KIT

The two relays together with an oil sight are mounted upon a steel plate. This plate may be bolted directly to the oil header chamber of any single compartment tap changers. The surge relay and low level alarm is supplied as a standard fitting on Type ES3. It is also available as an optional extra with Type DS2 and DS5 tap changers.

The surge relay consists of a mercury switch mounted in a pivoted paddle located above the 51mm (2 in) diameter orifice which communicates with the main switch chamber of the tap changer. The paddle is unaffected by the slow oil movements due to the gas evolved at the switch contacts when breaking circuit at normal current values. Under major fault conditions oil surging up through the 51mm (2 in) diameter orifice lifts the paddle and closes the mercury switch which is connected in the main tripping is adjusted to operate at an oil flow rate of 750 to 1200 mm/s through the orifice.

The low oil alarm relay uses a beam which has two arms of different densities. The arm of higher density material is arranged to overbalance the lower density arm in air. In oil the greater upthrust of lower density arm reverses the balance and the mercury switch opens.





# FERRANTI TAPCHANGERS LIMITED



## MAINTENANCE PARTS

Item	Page	Part Number	11	18	25	26	34	Product Description	Qty	Qty Req
1	2 3	TC-202643						GEARBOX OIL LEVEL SIGHT WINDOW	1	
2	2 3	TC-202645						GEARBOX OIL LEVEL SIGHT GASKET	2	
3	2 3	TC-202628						TOP OIL LEVEL SIGHT WINDOW	1	
4	2 3	TC-202630001						TOP OIL LEVEL SIGHT GASKET	2	
5	2	TC-229860002						MAIN FRONT COVER GASKET	1	
6	2	TC-228742002						GEARBOX COVER GASKET	1	
7	2 3	TC-202050						AIR RELEASE VALVE	1	
8	2	TC-224068002						OIL LEVEL SIGHT WINDOW	1	
9	2	TC-224068003						OIL LEVEL SIGHT GASKET	2	
10	2	TC-209053						OIL SURGE GASKET	1	
11	3	ES3 GASKET KIT	→					ES3 GASKET KIT	1	
12	4 5	TC-201929						MAIN CONTACT	3	
13	4 5	TC-201928001&2						CONTACTS BARS	3 of each	
14	4 5	TC-201921						MAIN CONTACT SPRINGS	6	
15	4 5	TC-201937001						HINGE PIN	3	
16	5	TC-2131000712						MAIN CONTACT WASHER	3	
17	5	TC-2115000200						SPLIT PIN	3	
18	5	TC-294007	→					MAIN CONTACT KIT	3	
19	4 6	TC-201919002						MOVING ROLLER CONTACT	6	
20	6	TC-201930002						MOVING CONTACT BEARING PIN	6	
21	6	TC-2115001500						SPLIT PIN	6	
22	6	TC-2136366255						DISC WASHER	6	
23	6	TC-210314						SHORT CASTLE NUT	3	
24	6	TC-210315						LONG CASTLE NUT	3	
25	6	TC-294002			→			ROLLER CONTACT KIT SHORT NUT	3	
26	6	TC-294003				→		ROLLER CONTACT KIT LONG NUT	3	
27	7	TC-201919001						FIXED ROLLER CONTACT	51	
28	6 7	TC-214341						PLAIN WASHER	57	
29	6 7	TC-213232						COMPRESSION SPRING	57	
30	7	TC-207904						FIXED CONTACT BEARING PIN	51	
31	7	TC-214346						CONTACT WASHER	51	
32	7	TC-2135000700						LOCK WASHER	51	
33	7	TC-2035341012						SCREW	51	
34	7	TC-294006					→	FIXED CONTACT KIT	51	
35										

PLEASE NOTE: PARTS NOT IDENTIFIED ARE ALSO AVAILABLE EX STOCK

### CONTACT

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