



**ILUKA**

***Scope of Works***

**Type "B" Gearbox**

**MPA-207-AD-14**

**August 2007**



**AMENDMENT HISTORY**

**CLIENT NAME: Iluka Resources Limited**

**PROJECT NAME: Offsite Repairs Management**

Whole of document

**AMENDMENTS IN THIS RELEASE:**

(Including problem or issues cleared and changes applied)

- X

**APPROVED BY:**

In accordance with the agreed sign-off procedures, the undersigned hereby approves and accepts this document on behalf of Iluka Resources.

Name: Geoff Dawes

Title: Manager Maintenance Systems & Offsite Repairs

Date:

**REVISION HISTORY:**

Version	Revision Date	Author(s)	Revision Notes
Draft V0.1	01/03/2007	G Dawes	Draft



## Table of Contents

1. Scope Outline .....	3
2. Repair Scope.....	3
3. Repair Scope Variances .....	4
4. Exceptions to the repair scope .....	4

### 1. Scope Outline

The purpose of this Scope definition is to outline the minimum technical requirements for the overhaul of a Type "B" Gearbox from Iluka sites within Western Australia. Type "B" gearboxes will be identified by Material number and generally are valued at less than \$10,000.

### 2. Repair Scope

Quote:

1. Receipt the item into the Vendors premises
2. Photograph item as received
3. Develop a detailed scope of work, including repair method, inspection and test plan as required, costing and lead time for the repair.
4. Visually inspect gearbox before dismantling and identify any irregularities.
5. Strip gearbox to allow fitment of new bearings and seals.
6. Visual inspection of all bearing surfaces within the housing and check to bearing fitment sizes.
7. Visual inspection of gears and shafts
8. Visual inspection of oil breathers/filters
9. Visual inspection of casing for cracks/distortions
10. Include into the repair scope any I&A changes relevant to the gearbox being repaired.
11. Submit the scope of repair and quotation to the OSRI manager for review and acceptance.

Rebuild



12. Upon acceptance of the quote by Iluka the OSRI manager will issue the order for the work to proceed.
13. Assemble gearbox
14. Paint the external surfaces of the gearbox to Iluka requirements.
15. Refit any couplings or pulleys supplied with initial job
16. The gearbox shall be package to prevent damage during transport to the relevant Iluka site.

### **3. Repair Scope Variances**

- New shafts
- New Gears
- New or repaired coupling including boring and keyed
- Shaft sleeves
- Metal spray of seal and shaft journals
- Gearbox casing repairs

### **4. Exceptions to the Repair Scope**

- The possibility of exceptions can exist in any generic group of items and within the group of Type "B" Gearboxes. These may be gearboxes of High criticality with excessive OEM lead times or intricate in construction

Material numbers:

- Xxxxxxx
- Xxxxxxx
-



# FINAL CONFORMANCE TEST CERTIFICATE

RCR JOB #	278856		
EQUIPMENT TYPE	FENNER GEARBOX (M)		
CLIENT & ORDER #			
STOCK #			
DATE OF TEST	17/1/08		
	COMMENTS	INSPECTORS NAME	DATE
<b>BEARING/SHAFT INSPECTION</b>			
GEARBOX HOUSING BORES WITHIN SPECIFICATION	yes	C. TARR	16/1/09
GEARBOX BEARING JOURNALS WITHIN SPECIFICATION	yes	C. TARR	16/1/09
SEAL CONDITION	NEW	C. TARR	16/1/09
INPUT SHAFT END FLOAT			
CHECK ROTATION OF BACKSTOP	yes ANTI-CLUSE	C. TARR	16/1/09
<b>LUBRICATION</b>			
OIL TYPE Amount	40 Ltrs	<del>CM</del> cm	14/1/09
OIL AMOUNT Type	Gear Oil VMX100	<del>CM</del> cm	14/1/09
<b>HOLD POINT - INSPECTION PRIOR TO TEST RUN</b>			
GEARBOX MOUNTED SECURED	yes	Correct	16/1/09
ROTATE INPUT SHAFT SO THAT OUT PUTSHAFT TRAVELS 360 DEG	yes		
<b>TEST RUN</b>			
ENSURE CAUTION TAPE IS ERRECTED BEFORE TESTING			
TEST SPEED TO BE RECORDED	250 RPM	<del>CM</del>	16/1/09
TEMP AT STARTING TIME	28°C	C. TARR	16/1/09
	3 HRS.		
RUN TIME - Starting Temp	28°C	C. TARR	16/1/09
GEARBOX TEMP - 1 HR FROM START	28.5°C	C. TARR	16/1/09
GEARBOX TEMP - 2 HR MINIMUM	31.2°C	C. TARR	16/1/09
GEARBOX TEMP - 3 HR MINIMUM	31.1°C	C. TARR	16/1/09
INPUT SHAFT TEMP - 1 HR FROM START	31.1°C	C. TARR	16/1/09
INPUT SHAFT TEMP - 2 HR MINIMUM	32.1°C	C. TARR	16/1/09
INPUT SHAFT TEMP - 3 HR MINIMUM	31.9°C	C. TARR	16/1/09
RE-CHECK GEARBOX FOR ANY PROBLEMS			16/1/09
HOLD POINT - SUPERVISOR TO CHECK	OK	<del>CM</del> CM	19.1.09
SURFACE TREATMENT	yes	C. TARR	16/1/08
PACKAGING/COPY OF TEST CERTIFICATE	yes	C. TARR	19/1/08