



**ENGINEERING SERVICES & SUPPLIES PTY LTD**

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# GAS Sealing Support System

## Installation, Operation & Maintenance Manual





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## WARRANTY

**ESS WARRANTS** the **GAS Sealing Support System** to be free of defects both in materials and workmanship for a period of 12 months from the date of despatch of the product from the **ESS** factory. The warranty given by **ESS** in this regard will extend only to replacing or repairing product shown to be defective.

The warranty also is subject to the following restrictions:

- (a) Installation of the product contrary to the instructions contained in the supplied manual will void such warranty absolutely.
- (b) The warranty will not extend to any liability for injuries incurred and which result from the use of the product contrary to the instructions in the manual;
- (c) Save as prescribed by law, **ESS** will not be liable for any damage sustained by a purchaser or a third party by way of consequential loss arising out of defects in the product.

You are asked to note that **ESS** offers purchasers a service whereby either:

- (a) It will install the product and certify the correctness of such installation, or
- (b) Certify the correctness or otherwise of the installation of the product by third parties. This

certification service is designed to ensure that you obtain the full benefit of the **ESS** warranty hereby provided. If you would like to take advantage of the installation certification service provided, please contact **ESS** regarding the service. Refer to the Final

Checklist at the back of this manual.

Visit the **ESS** website [www.esseng.com.au](http://www.esseng.com.au) to register your product warranty.

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Information contained herein is for use in the operation of **GAS Belt Support System**, purchased from **ESS** and cannot be passed on to any other party without express permission, in writing, from **ESS**.



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## 1. SAFETY

The GAS is designed to be quickly and easily serviced by appropriate personnel.

Under no circumstances should servicing or installation of the cleaner be carried out whilst the belt is in operation.

The conveyor must be shut down and locked out before any person enters or reaches into the conveyor enclosure.

Ensure that only suitably qualified and trained personnel install and service this product. Ensure that all site and statutory safety procedures are followed.



## 1.1. SAFETY LABELS

Pictograph labels are used to show graphically where potential safety hazards exist around this product. These labels do not represent every possible hazard. They are not intended to be a substitute for safe work practices and good judgment. These labels and *ESS* technical manuals use specific words to identify the severity of the hazard. They are described below. Take time to read and understand the meaning of these words and symbols.



Danger labels call attention to imminently hazardous situations that will result in serious personal injury or death if not avoided. Injury from these hazards is immediate in nature and has a high probability of resulting in a serious or fatal accident if proper precautions are not followed.



Warning labels call attention to potentially hazardous situations that could result in serious personal injury or death if not avoided. Injury from these hazards is usually serious in nature, and a severe or fatal accident can occur if proper precautions are not followed.

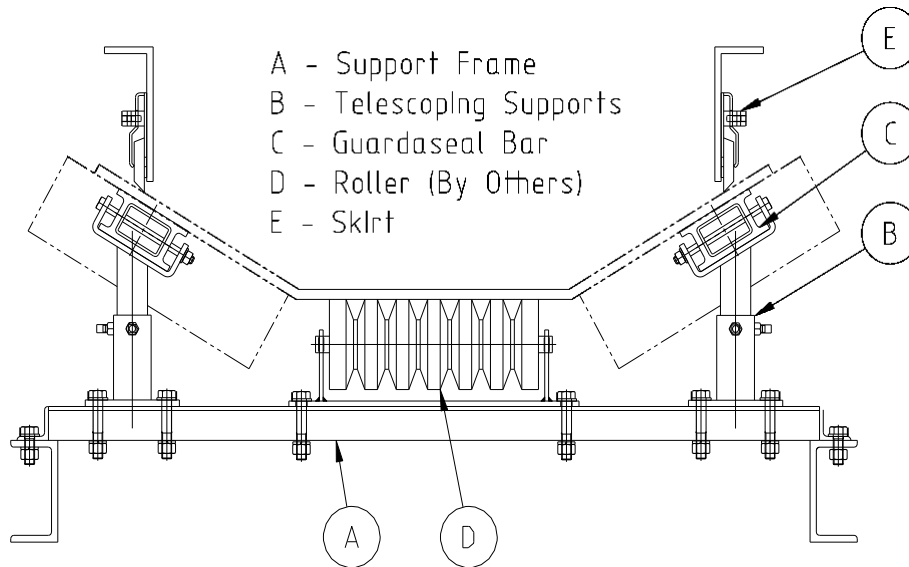


Caution labels call attention to potentially hazardous situations that may result in minor or moderate personal injury if not avoided. Injury from these hazards is normally less serious than those from Danger or Warning hazards. However, there is still the potential for an accident resulting in serious injury if proper precautions are not followed.



## 2. INTRODUCTION

The **ESS** GAS Sealing Support System consists of a telescoping steel frame, fitted with low friction UHMW-Polyethylene bars that are designed to be easily removed without the necessity of pulling out the support frame from the conveyor. The System is fabricated to conform exactly to the troughed belt profile (FIG. 1).



*Figure 1 – GAS Sealing Support System*

The **ESS** GAS Sealing Support System holds conveyor belts in a stable, sag free position to allow effective sealing. By minimising belt vibration and sag the GAS Sealing Support System reduces escaping material and risk of damage to the belt and conveyor accessories. GAS bars provide a low friction, self-lubricating surface for conveyor belts to skim over without heat build-up or undue wear on the belt surface or bars. The **ESS** GAS Sealing Support System is not intended to absorb impact.

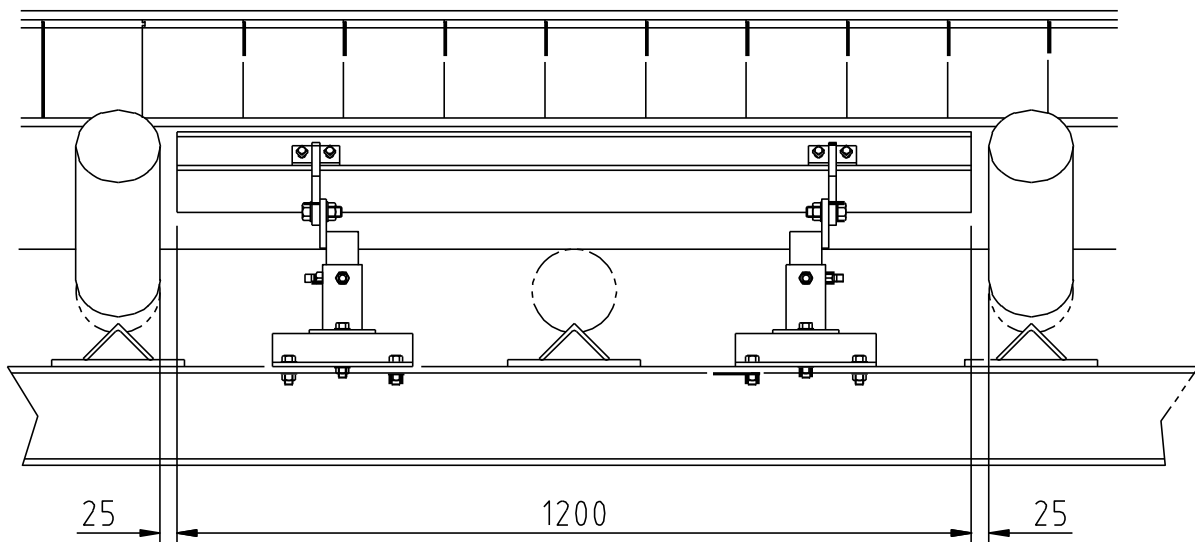


### 3. INSTALLATION

#### 3.1 INSTALLATION PROCEDURE

1. Determine approximate installation position for each Support System on the conveyor and place the appropriate Systems adjacent to the installation area.
2. Before commencing installation or any work around the conveyor belt ensure that the belt is isolated and tagged.
3. The **ESS** GAS Sealing Support System is intended to be installed between idler troughing assemblies. Multiple Support Systems will have an idler troughing assembly between each successive System. Ensure that the idler assemblies are either already installed or available at the installation site. If the idlers are already installed, check that sufficient clearance is available between successive sets of rollers to fit a Support System. Standard Systems are 1200mm long and require 25mm clearance at each end between System bar and roller (FIG. 2). If required, the GAS Bars can be easily cut to suit on site.
4. Assemble the necessary tools and safety equipment required for the job.

**NOTE: BEFORE PROCEEDING WITH INSTALLATION, ENSURE THAT THE CONVEYOR BELT DRIVE IS FULLY ISOLATED AND LOCKED OUT.**



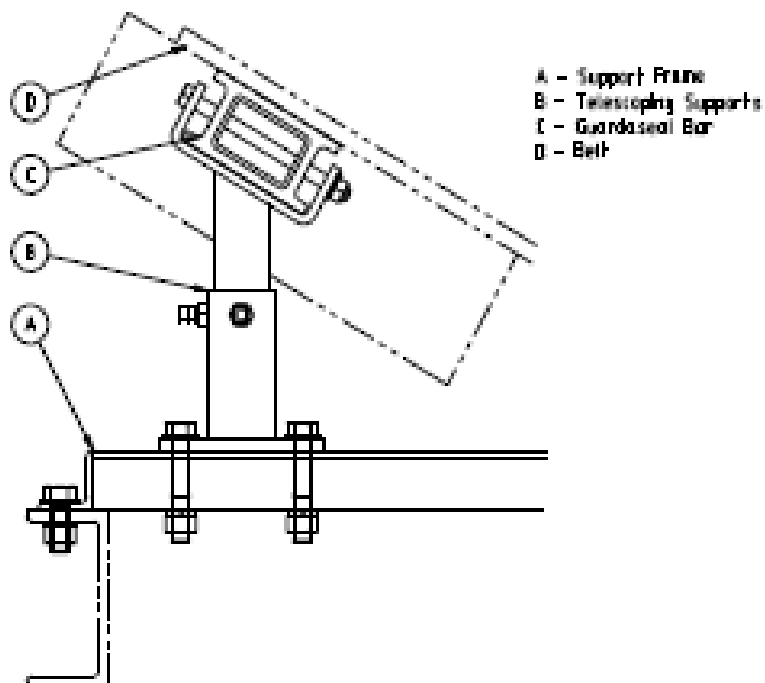
*Figure 2 - Standard 1200mm System*



5. Determine the installation position for the Support System/s The System/s should be installed to cover the entire skirted section of the conveyor belt. Having determined the position of the first Support System, place the first support frame onto the conveyor stringers in the appropriate position and align with stringers. Ensure that the support frame is centred and squared to the stringers and clamp into position. Repeat with other support frame.
6. Slide the telescoping supports onto the GAS Bar at a distance apart the same as the support frames. Slide this assembly onto the support frames until the GAS Bars are under the skirting. Adjust the telescoping frames so that the Guardaseal Bar sandwiches the belt firmly between the skirting and the Bar (FIG. 3).
7. If not already in position, install an idler set either side of the Support System ensuring that 25mm clearance will be available at both ends of the GAS Bars (FIG. 2).
8. Repeat the above procedure for all subsequent Systems.

**NOTE** IF YOU HAVE ANY PROBLEMS, OR ARE UNCLEAR ON ANY INSTALLATION STEP, CONTACT ESS ON OUR CUSTOMER SERVICE NUMBER 1800 074446.

9. Remove danger tags and return conveyor to service, following plant procedures.





## 4. COMMISSIONING

No special commissioning procedures are required for GAS Support Systems. Provided the Systems are installed as per the drawing and instructions, then operational attention should not be required.

### A note on safety:

No additional safety hazards are present with GAS Support Systems other than normal conveyor belt dangers.

In particular:

- Beware of moving conveyor belts.
- Beware of pinch points
- Do not attempt to install, maintain, or disassemble any part of a conveyor belt without first isolating and tagging the conveyor drive.



## 5. OPERATOR TRAINING

### 5.1 SERVICING

There are no operator serviceable or adjustable functions on an **ESS** GAS Support System. No in-service procedures need to be followed, other than normal conveyor belt operating procedures.

### 5.2 SAFETY

As mentioned in Section 4, no additional safety hazards exist with an **ESS** GAS Support System, other than normal conveyor belt dangers.

- Do not attempt to perform any job on or around a moving conveyor belt - isolate and tag the belt first.

### 5.3 PROBLEMS

The operator, during routine conveyor inspections, should be alert to the following problem indicators:

- Smoke or burning rubber smell - the belt should be stopped immediately, and the problem located. It is far more likely to be a seized impact idler or a skirting problem but could possibly indicate a Support System fault.
- Leakage of material from skirts at load zone - this should be notified to the appropriate maintenance personnel for attention at the earliest plant stoppage. It may mean that skirting requires attention, and/or that the Support System wings require adjustment or are worn.



## 6. ROUTINE MAINTENANCE & SERVICE

### 6.1 SAFETY

Before attempting any maintenance on or around a conveyor belt, ensure that the belt drive is isolated and tagged.

### 6.2 GENERAL

The **ESS** GAS Support System requires virtually no maintenance to operate under extreme conditions for thousands of hours. However, to achieve the best bar life and avoid the need for unscheduled bar change-outs, the following maintenance practices should be adopted.

### 6.3 ROUTINE MAINTENANCE

The Systems should be inspected for bar wear after one month of operation, and again after three months.

Subsequent inspection frequency can be determined after the wear rate is assessed at these initial inspections.



## 7. TROUBLE SHOOTING

If the routine maintenance and scheduled bar change-outs are performed as per *Routine Maintenance*, non-routine maintenance should be virtually non-existent. However, the following situations are possible.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Smoke or burning rubber smell.	Seized idler. Over adjusted or damaged skirting.	Replace idler Replace or adjust skirting rubber.
Material spillage under skirts.	Skirting rubber not adjusted or failed. GAS Bars are worn.	Adjust or replace skirting. Adjust or turn Bars over or replace.

### System Disassembly Procedure

The disassembly of an **ESS** GAS Support System is a simple process.

1. Loosen the lock screws on the telescoping supports.
2. Slide the assembly from the support frame.
3. Loosen the lock screws on the bars.
4. Slide the Bars from the supports.
5. Inspect the bars for wear or damage.
6. Rotate the bars if necessary or replace them.
7. Repeat for the other side.

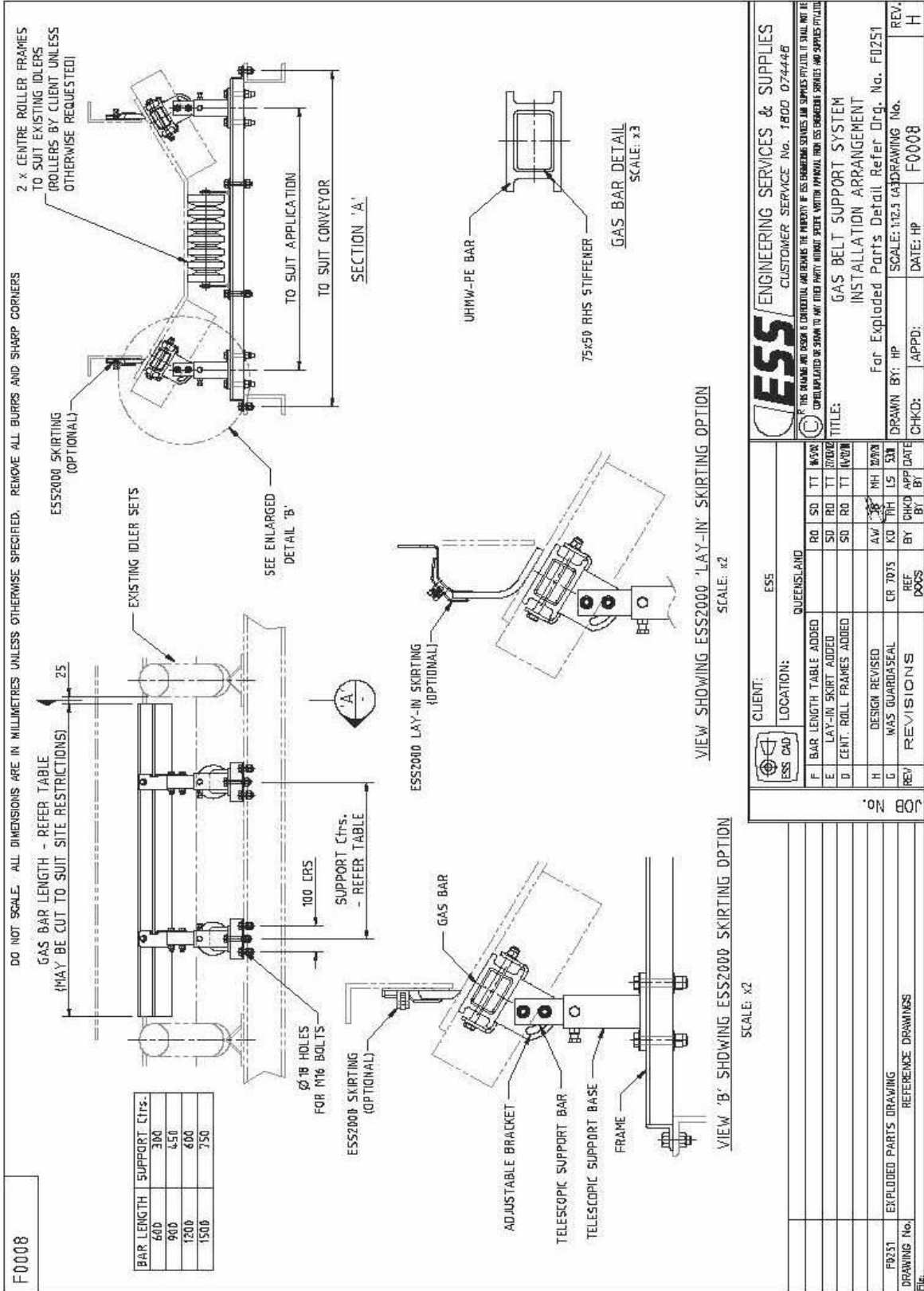
### System Re-assembly

Re-assemble the System in reverse order of disassembly,



## 8. INSTALLATION ARRANGEMENT DRAWINGS

### F0008 GAS BELT SUPPORT SYSTEM



### F0227 GAS DROP-IN UNIT GENERAL ARRANGEMENT

**F0227**

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED. REMOVE ALL BURRS AND SHARP CORNERS

**ROLLER DATA (REFERENCE ONLY)**

BELT WIDTH	ROLLER FACE LENGTH	GAS BAR WIDTH
500	191	
600	226	
650	246	100
750	280	
800	296	
900	333	
1000	360	150
1050	385	
1200	438	200

**NOTE:**  
 DETAILS OF THE ROLLER/IDLER SET USED IS REQUIRED BEFORE MANUFACTURE CAN COMMENCE.

25 MIN. TYPICAL

1200 SUPPLIED LENGTH  
MAYBE CUT TO SUIT SITE RESTRICTIONS

TO SUIT EXISTING FRAME CTRS. (600 APPROX.)

EXISTING ROLLER SETS

DROP-IN UNIT SLOTS INTO EXISTING IDLER SET

ESS2000 SKIRTING (OPTIONAL)

SEE ENLARGED DETAIL 'B'

SECTION A A

ESS2000 LAY-IN SKIRTING (OPTIONAL)

GAS BARS SEE DETAIL

GAS DROP-IN UNIT SUPPORT BRACKET

VIEW SHOWING ESS2000 'LAY-IN' SKIRTING OPTION & OPTIONAL 2 BAR CONFIGURATION

DETAIL B SHOWING ESS2000 SKIRTING OPTION

ESS2000 SKIRTING (OPTIONAL)

GAS BAR SEE DETAIL

GAS DROP-IN UNIT SUPPORT BRACKET

DETAIL B SHOWING ESS2000 SKIRTING OPTION

ESS2000 SKIRTING (OPTIONAL)

GAS BAR SEE DETAIL

GAS DROP-IN UNIT SUPPORT BRACKET

DETAIL B SHOWING ESS2000 SKIRTING OPTION

CLIENT: **ESS QUEENSLAND**

LOCATION: **QUEENSLAND**

REV	DESCRIPTION	REF DOCS	BY	CHKD	APP	DATE
E	GAS BAR BRKT REVISED	EDGR 1151	AW	AKK		16/07/18
D	WAS GUARDA SEAL	CR 2618	KD	SD	MH	13/08
C	ROLLER DATA ADDED		BP	SD	TT	20/08
B	GAS DROP-IN UNIT AMENDED		BP	SD	TT	16/08
A	DOUBLE BAR OPTION ADDED		RO	SD	TT	16/08

**ESS ENGINEERING SERVICES & SUPPLIES**  
 CUSTOMER SERVICE No. 1800 074446

TITLE: **GAS DROP-IN UNIT INSTALLATION / GENERAL ARRANGEMENT**

SCALE: 1:10 DRAWING No. **F0227**

DRAWN BY: SD APPD: TT CHKD: RO DATE: 16/10/00 REV. **E**



# 9. EXPLODED PARTS LIST

## F0251 GAS BELT SUPPORT SYSTEM

**NOTE:**  
A GAB / GAS APPLICATION DATA FORM AND AN IDLER DATASHEET WILL NEED TO BE FILLED OUT BEFORE MANUFACTURING TAKES PLACE.  
CRADLES ARE DESIGNED FOR INDIVIDUAL APPLICATIONS PLEASE QUOTE ORIGINAL ORDER No. WHEN ORDERING SPARE PARTS.

**GUARDASEAL ASSEMBLIES COMPLETE**

BAR LENGTH	PART No.
600	45081xxx
900	45082xxx
1200	45083xxx
1500	45085xxx
1800	45088xxx

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED. REMOVE ALL BURRS AND SHARP CORNERS.

**NOTE:**  
PART NO'S FOLLOWED BY xxx INDICATE THAT THE PART IS AVAILABLE IN ALL STANDARD BELT WIDTHS. SUBSTITUTE xxx WITH BELT WIDTH MEASURED IN CM.  
1. PART NO'S FOLLOWED BY xxx INDICATE THAT THE PART IS AVAILABLE IN ALL STANDARD BELT WIDTHS. SUBSTITUTE xxx WITH BELT WIDTH MEASURED IN CM.  
2. ITEM 5, G.A.S. BARS COME IN 4 STANDARD LENGTHS - 600, 900, 1200 & 1500  
SUBSTITUTE xxx IN P/Ns WITH THE BAR LENGTH IN CM.  
I.E. 1200 LONG G.A.S. BAR = P/N:46027120

**SUFFIX NOTES**  
GENERAL S = S.S. (STAINLESS STEEL)  
FASTENERS / FITTINGS S = S.S. (STAINLESS STEEL)  
Z = ZINC PLATED

**PART NO. NOTES**  
1. PART NO'S FOLLOWED BY xxx INDICATE THAT THE PART IS AVAILABLE IN ALL STANDARD BELT WIDTHS. SUBSTITUTE xxx WITH BELT WIDTH MEASURED IN CM.  
2. ITEM 5, G.A.S. BARS COME IN 4 STANDARD LENGTHS - 600, 900, 1200 & 1500  
SUBSTITUTE xxx IN P/Ns WITH THE BAR LENGTH IN CM.  
I.E. 1200 LONG G.A.S. BAR = P/N:46027120

BELT WIDTHS AVAILABLE
450
600
750
900
1050
1200
1350
1500
1800
2000
2200
2400

ITEM	DESCRIPTION	QTY	DRG.No.	PART No.
19	BOLT M12x80 HEX 304 5/5	4	-	023035455
18	ADJUSTABLE BRACKET	4	-	034604515
17	MAINFRAME PLUG TO SUIT 75X50 RHS	4	-	02650440P
16	IDLER ROLLER (BY CLIENT)	2	-	-
15	NUT M12 NYLOC 304SS	12	-	023115145
14	WASHER M12 304SS	24	-	023195125
13	BOLT M12X170 HEX 304SS	4	-	023035855
12	NUT M16 NYLOC ZP	8	-	02311618Z
11	NUT M16 HEX ZP	8	-	02311616Z
10	WASHER M16 SPRING ZP	8	-	02319618Z
9	WASHER M16 H/D ZP (L/S 38 O.D.)	32	-	02319617Z
8	SCREW M16X50 HEX SET ZP	8	-	02315640Z
7	BOLT M16X90 HEX ZP	8	-	02303640Z
6	SCREW M12X28 HEX SET POINTED 304SS	8	-	023155295
5	GUARDASEAL BAR COMP	2	00452	46027ZZZ
4	CENTRE IDLER FRAME - NO IDLER	4	00356	460100105
3	TELESCOPIC SUPPORT BAR S/S	4	00355	460100055
2	TELESCOPIC SUPPORT BASE S/S	4	00355	460100055
1	GUARDASEAL BASE	2	-	46040xxx

CLIENT: ESS  
LOCATION: QUEENSLAND

F	ITEM 3 WAS WELDED PART	AM	JF	MH	W/M		
E	WAS GUARDASEAL	CR	7015	KO	MH	LS	S0/R
D	MATERIALS UPDATED	EDCR	700	MT	SD	RE	10/WK
C	UPDATE AS PER REQUEST	EDCR	419	RE	SD	SD	10/WK
G	ITEM 2 & 3 REVISED	AW	JIS	MH	M/W		
REV	REVISIONS	REF	DOCS	BY	CHKD	APPD	DATE

ESS CAD

REVISIONS: REF DOCS

SCALE: NTS  
DRAWING No. F0251  
DATE: 10/5/02  
CHKD: SD  
APPD: TT

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CUSTOMER SERVICE No. 1800 074446

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TITLE: GAS BELT SUPPORT SYSTEM  
EXPLODED PARTS

REV: G



## 10. FINAL CHECKLIST

Site: \_\_\_\_\_ Number: \_\_\_\_\_ Date: \_\_\_\_\_

Site Equipment No./Location: \_\_\_\_\_ Site Contact: \_\_\_\_\_

Completed By: \_\_\_\_\_

(Circle Yes or No Below)

Was equipment to ESS Specification? Yes/No

Drawing No. Ref: \_\_\_\_\_ Attached? Yes/No

If No, WHY \_\_\_\_\_

Will this affect performance? Yes/No

If Yes, WHY \_\_\_\_\_

Was this a standard  service  inspection  installation? Yes/No

If No, WHY \_\_\_\_\_

Was work carried out as per procedure and JSA? Yes/No

If No, WHY \_\_\_\_\_

Is equipment fit for commissioning? Yes/No

If No, WHY \_\_\_\_\_

Was a final inspection carried out while plant was running? Yes/No

If No, WHY \_\_\_\_\_

Has anything changed from previous service / inspection / installation? Yes/No

If Yes, WHAT \_\_\_\_\_

Is equipment performance to Client expectations? Yes/No

If No, WHY \_\_\_\_\_

ESS Signature: \_\_\_\_\_ Client Signature: \_\_\_\_\_

